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Continuous Emission Monitoring at the Georgetown University Fluidized-Bed Boiler

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CONTINUOUS EMISSION MONITORING AT THE GEORGETOWN UNIVERSITY FLUIDIZED-BED BOILER

by

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The report gives results of a continuous emission monitoring program for SO2, NOx, and particulate matter at Georgetown University's 100,000 lb steam/hr fluidized-bed boiler, to assess emissions control performance. Because the system was still in an extended shakedown phase, several key operating conditions (e.g., level of excess air, percent flyash recycle) were not operating in the intended design range. Consequently, an in-depth engineering analysis was necessary to interpret the emission data. On a daily average basis, desulfurization was >75% on all 24 days of record, >85% on 12 days, and >90% on 8 days. Although NOx emission rates were higher than 301 ng/J approximately half the time, they were shown to correlate with the flue gas O2 levels, typically in the off-spec range of 10-12%. Average particulate emission rates for the 2 days of record were 36.5 and 24.3 ng/J. Implementation of recommendations resulting from the program are in most cases complete or in progress, and are leading to improved emission performance.

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Fluidized Bed Processors	Nitrogen Oxides	Stationary Sources		
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ABSTRACT

During August and September 1980, a continuous emission monitoring program was conducted at the Georgetown University 100,000 lb steam/hr fluidized-bed boiler (FBB) to assess emissions control performance for SO_2, NO_x, and particulate matter. Because this system was still in an extended shakedown phase, several key operating conditions (e.g., level of excess air, percent fly ash recycle) were not operating in the intended design range. Consequently, an in-depth engineering analysis was necessary to interpret the emission data. On a daily average basis, desulfurization was greater than 75 percent on all 23 days of record, greater than 85 percent on 15 days, and greater than 90 percent on 10 days. Although NO_x emission rates were higher than 301 ng/J approximately 35 percent of the time, the NO_x emission rate was shown to be correlated with the flue gas O_2 level which was typically in the "off-spec" range of 10 to 12 percent. The average particulate emission rates for the 2 days of record were 36.5 ng/J and 24.3 ng/J. Implementation of recommendations resulting from this program are in most cases complete or in progress, and are leading to improved emission performance. A follow-up continuous monitoring program was conducted at the Georgetown University fluidized-bed boiler in February and March 1982. The results of the second monitoring program will be published in a separate report.

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SECTION 1

INTRODUCTION

The United States Environmental Protection Agency (EPA), through its Office of Air Quality Planning and Standards (OAQPS), is developing New Source Performance Standards (NSPS) for industrial boilers. Currently, only boilers of greater than 73.3 MW_t (250×10^6 Btu/hr) capacity (mainly in the utility sector) are subject to Federal NSPS.

Boilers in the smaller size category emit a significant portion of overall stationary combustion source emissions because of the large number of units, estimated at 1.8 million in 1977. More than 40 percent of fossil fuel burned in boilers in the United States is burned in units of industrial/commercial capacity.[1]

Industrial/commercial boilers are currently regulated by State Implementation Plans (SIP), although emission limitations vary from state to state. Generally, only particulate and sulfur dioxide (SO_2) emission rates are specified, and based on surveys by EPA's Regional Offices, regulations adopted for smaller boilers are not always rigorously enforced.[1]

Given the current status of industrial boiler emission regulations and the mandate of the Clean Air Act Amendments of 1977, the EPA is expected to propose NSPS for industrial boilers before the end of 1981. Over the past 2 years, several extensive and comprehensive background investigations of candidate emission control techniques have been conducted to assess their applicability, availability, performance, and cost. Part of this work included compilation and review of existing emission test data.

GCA was responsible for investigating the use of fluidized-bed combustion (FBC) in the industrial sector.[2] Although extensive emission data do exist, they are mainly results from bench- and pilot-scale units of small capacity using a variety of pollutant sampling and analysis techniques, not always reference methods specified by EPA. In addition, long periods of FBC operation on the order of 1 week to 1 month have only recently been achieved so that long-term emission control performance has not been demonstrated.

To partially fill the data gap for FBC emission control, GCA conducted continuous emission monitoring at the Georgetown University fluidized-bed boiler (FBB) over a 30-day period. This report documents the results of testing performed from August 19 to September 18, 1980, using continuous monitoring equipment already installed at the plant and operated and maintained by the Georgetown University Physics Department.

The Georgetown FBB burns coal of low to medium sulfur content and has a rated capacity of 100,000 lb/hr steam. Limestone is added to the bed for SO_2 control, and fabric filters are used for final particulate control. Fluidized-bed combustion provides inherent control of nitrogen oxide (NO_x) emissions through low combustion temperature, approximately 843°C (1550°F), which practically eliminates thermal NO_x formation and provides a favorable atmosphere for chemical reduction of fuel-derived NO_x.

The remaining sections of this report discuss the entire monitoring program in detail, including a description of the facility and emission monitoring program, and results of all measurements and analyses. In addition to reporting emission control efficiencies attained, an attempt is made to correlate emission control performance with important boiler operating parameters, such as calcium to sulfur (Ca/S) molar feed ratio, bed temperature, gas phase residence time, and excess oxygen. This analysis is an important part of the study because the boiler did not always operate in strict accordance with design conditions throughout the program, and, therefore, performance was not consistently typical of that expected in general commercial application of FBC.

In ensuing discussions, FBB performance is compared to optional emission limitations which were presented in the Technology Assessment Report for Industrial Boiler Applications: Fluidized Bed Combustion.[2] These levels were designated as stringent, intermediate and moderate and were used as benchmarks to define FBC emission control capability, cost, energy, and environmental impact. The levels chosen cover the range of potential emission standards that could be established for FBC industrial boilers.

Operation of the Georgetown FBB is one of the most successful and largest applications of fluidized-bed coal combustion in this country to date. The facility has demonstrated reliability in following steam demand for university heating and air conditioning purposes. The boiler performed two continuous runs of approximately 15 days each during GCA's activities on site. Shortly after completing our monitoring program, a continuous run of approximately 30 days was achieved.

A follow-up continuous monitoring program was conducted at the Georgetown FBB during February and March 1982. A separate report will be published to document the results of the second program.

SECTION 2

CONCLUSIONS AND RECOMMENDATIONS

The continuous monitoring program conducted at the Georgetown University fluidized-boiler (FBB) is, to date, one of the most intensive studies of emission control performance in an industrial application of coal-fired fluidized-bed technology. Although the results provide insight into system operation and performance, caution must be exercised in applying these results on a broad scale to represent atmospheric fluidized-bed technology in general. The results are site-specific for two important reasons; first, the Georgetown design is not typical of all envisioned fluidized-bed designs, as this design is only one of many; and second, several important operating features affecting emission control performance were not in conformance with boiler operating/design conditions. During the emission monitoring program, the FBB was operating in an extended shakedown mode. The results reported here should be considered as a supplement to, and not in place of, conclusions and recommendations reported in the "Technology Assessment Report for Industrial Boiler Applications: Fluidized-Bed Combustion."[2] Table 14 in Section 7 presents the matrix of optional emission levels[2] used for comparison in the following statements.

CONCLUSIONS

Emission Control Performance

- Desulfurization performance in the FBB was consistently greater than 75 percent while hourly average removal rates were in excess of 90 percent almost half the time. On a daily average basis, desulfurization was greater than 75 percent on all 23 days of record; desulfurization was 85 percent or more on 15 days, and greater than 90 percent on 10 days. Limestone feed rates were higher than envisioned for routine application of industrial FBC technology due to process operating conditions discussed later in this section.

- Measured NOx emission rates were higher than the optional moderate emission level of 301 ng/J (0.7 lb/10^6 Btu) approximately 35 percent of the time, on both a daily and hourly average basis. Daily average NO_x emissions were below 301 ng/J on 15 of 24 days; the NO_x emission rate was below 258 ng/J (0.6 lb/10^6 Btu) (the optional intermediate level) on 10 days, and below 215 ng/J (0.5 lb/10^6 Btu) (the optional stringent level) on 2 days. The NO_x emission rate was strongly influenced by the flue gas O_2 level which was typically in the range of 10 to 12 percent. Our analysis suggests that the stringent level of 215 ng/J (0.5 lb/10^6 Btu) could be met if flue gas O_2 levels were maintained at less than 8 percent. Due to process operating problems discussed later in this section, this low excess O_2 concentration could not be maintained except on a few occasions for several hours.

- Particulate emissions were measured at the stack in triplicate sets on 2 days during the program, August 23 and September 13. On the first day, the average particulate emission rate was 36.5 ng/J (0.0848 lb/10^6 Btu) based on three replicate tests. This is consistent with the optional intermediate particulate level of 43 ng/J (0.1 lb/10^6 Btu), but slightly higher than expected for the FBB because of torn bags in the baghouse, some bag blinding, and inefficient multicyclone particle collection upstream of the baghouse.

  Several damaged bags were replaced during a scheduled outage over the Labor Day weekend and particulate measurements conducted on September 13 showed improved baghouse performance. The average particulate emission rate based on three replicate tests was 24.3 ng/J (0.056 lb/10^6 Btu). The plant conducted a major overhaul in November, replacing all remaining torn bags and about 200 Teflon bags that had blinded.

Process Operation

The Georgetown FBB has demonstrated reliability in burning coal and generating steam during 2 years of operation, with continuous runs of 30 days or more. With regard to pollutant emission control, several important operating factors were atypical of design conditions and, consequently, affected air pollutant control and/or system cost effectiveness. Minor modifications to system operation would help eliminate these problems.

- Flue gas O_2 concentration - Flue gas O_2 was normally in the range of 10 to 12 percent, or at least double the design value of 5 percent. Because the feedback signals from the in-bed O_2 monitors were not working, operators normally added combustion air at a conservative level to avoid reducing zones that might cause boiler tube corrosion. These monitors failed to operate for more than several hours at a time and for only 1 or 2 days during the continuous monitoring program. When they were in operation, excess O_2 was controlled to between 6 and 8 percent. Our analysis of emission data shows a strong direct correlation between O_2 and NO_x emission rate. Explanatory equations developed from the data indicate that the moderate NO_x emission level could be consistently supported at flue gas O_2 levels of up to 10 or possibly 11 percent, but above this the moderate level tends to be exceeded. High O_2 levels tend to suppress chemical reduction reactions in the bed that reduce NO_x to molecular nitrogen.[3]

These phenomena are more fully explained in Section 7. High O_2 levels may have also affected baghouse performance by increasing air-to-cloth ratios to levels expected during full load operation.

- High limestone feed rates - Unnecessarily high limestone feed rates were used during the CEM program as a result of boiler operating problems. Actual Ca/S ratios were higher than design levels (also caused by low coal sulfur concentrations) of 3 to 3.5 and were typically between 5 to 10. These high limestone feed rates have an adverse impact on system cost effectiveness. Considering unexpectedly low coal sulfur content between 1.5 to 2.5 percent, limestone feed rates could have been lower in the absence of other operating problems and greater than moderate levels of desulfurization efficiency could have been maintained.

- Ineffective fly ash reinjection - Five eductors designed to recirculate fly ash captured by the multicyclone into the bed were not working adequately during the CEM program. Consequently, multicyclone collection efficiency was low because of clogging, but the actual performance is unknown.

  Of all operating problems, this one may be the most significant because it may have affected emissions of SO_2, NO_x and particulates. Efficient fly ash reinjection allows for lengthened limestone residence time in the bed, thus allowing greater particle sulfation. In the absence of effective fly ash reinjection, higher Ca/S ratios were necessary to attain otherwise routine levels of desulfurization. Fly ash reinjection provides recirculation of char, which experimental studies have shown to have an influence in chemically reducing NO_x to molecular nitrogen.[3] This factor was eliminated as a result of ineffective reinjection. Finally, because the multicyclone was operating at low efficiency, baghouse particle loadings were probably above design levels, a factor that was probably a partial cause of emission rates somewhat higher than expected for the FBB.

- Baghouse operation - On August 19, 21, and 22, a hot slump procedure (induced draft fan, forced draft fan, coal and limestone feed were shut off for 1/2 to 2 hours) was initiated to inspect individual baghouse compartments to replace leaking bags. Puffing at the stack at regular intervals had suggested the problem of torn bags. On each occasion several bags (5 to 10) were replaced. Over the Labor Day weekend, the FBB was shut down to unclog the bed B drain, remove refractory lining, and fully inspect the baghouse. Several bags were replaced, but laboratory analysis showed that the Teflon bags in use (approximately 200 in all) were substantially blinded. Thus baghouse performance suffered from torn bags, bag blinding (inducing high air-to-cloth ratios at operating bags), and an overall high air-to-cloth ratio caused by high excess O_2 concentration.

Continuous Monitor Performance

Based on the performance specification tests conducted during the operational test period, the continuous monitoring system performed within specified criteria which require relative accuracy less than or equal to 20 percent.

Based on emissions in ng/J, the SO_2 and NO_x monitors demonstrated relative accuracy of 11.4 and 14.4 percent, respectively. On a ppm basis (i.e., not in combination with the O_2 monitor readout), the relative accuracy of the NO_x monitor was 21.3 percent, based on 9 repetitions of EPA reference Method 7 testing. The SO_2 monitor demonstrated a relative accuracy of 15.2 percent on a ppm basis.

Throughout the program, the continuous monitoring system consistently required operator attention and maintenance. Most problems were a direct result of the CEM system configuration which caused condensate formation and plugging in pollutant sample transport lines and pollutant monitors. These problems are detailed in Section 6 along with recommended modifications to the monitoring system.

RECOMMENDATIONS

Emission control performance could be improved with only slight adjustments to system operation. We recommend that the following adjustments or modifications be pursued, most of which are in progress or have been completed.

- Install reliable and operative in-bed O_2 monitors to allow for automatic control of combustion air injection, thus eliminating high excess O_2 while maintaining safe operation with regard to boiler tube corrosion.
- Upgrade the fly ash reinjection system to allow for efficient multicyclone collection and complete reinjection of collected material.
- Replace blinded baghouse bags to allow for even flue gas distribution and operation at design air-to-cloth ratio.
- Incorporate a reliable SO_2 feedback signal, either in-bed, or from the stack, to allow for automatic control of limestone feed.

With regard to the continuous emission monitoring equipment and the overall system design and operation we recommend the following:

- Provide for a completely heated and insulated sampling system to avoid condensate formation and subsequent plugging, acid corrosion, or pollutant measurement interference.
- Provide separate sample stream sources for the SO_2 and NO_x monitors to ensure sufficient samples for each monitor.

- Use a secondary filter at the stack to provide additional particle removal, which would help suppress instrument clogging.

- Modify the compressed air system to incorporate a degreasing and desiccant system. Heatless air dryers preceded by degreaser cartridges are one alternative. Otherwise, a dual piston oilless compressor with a heatless air dryer is recommended.

Finally, it is recommended that additional continuous monitoring be performed at a future date after system modifications are complete to assess the FBB performance during operation more consistent with specified design/operating conditions.

SECTION 3

FACILITY DESCRIPTION

The Georgetown University FBB is a two-bed, single-cell, top-suspended, balanced-draft, natural circulation boiler capable of generating saturated steam at 275 psig for delivery into the University steam header for heating and cooling of 204,000 m^2 of building space. Saturated steam at 625 psig can also be produced for delivery into the University header through a pressure regulation valve, with provisions for future cogeneration of electrical energy.

The design and operation of the Georgetown University FBB is based on classical fluidized-bed principles; i.e., use of low superficial velocity in the range of 1.2 to 24. m/sec (4 to 8 ft/sec), and primary recirculation of entrained solids to the combustion chamber. Design/operating conditions for the FBB are summarized in Table 1,[4] along with normal conditions encountered during the monitoring program.

The arrangement of the steam generator is shown in Figure 1, displaying the natural circulation flow path and appurtenances such as coal and limestone feed mechanisms, air distribution system, fly ash reinjection ports, and spent bed drains.[4] Bed A, adjacent to the boiler bank, acts as the primary bed for fly ash reinjection. In plan view, each of the two beds is 1.7 m (5 ft-6 in.) wide by 5.9 m (19 ft-4 in.) long.

COAL AND LIMESTONE FEED

Coal is fed into each bed using separate conventional spreader stoker overbed feeders. Double screened coal is burned, sized 1-1/4 x 1/4 in. Coal drying is not necessary.

Limestone is fed by gravity at a single point in each bed and is sized to less than 3 mm (1/8 in.). Because of the long residence time of the limestone in the fluidized bed and the rapid burning rate of the coal, less than 5 percent of the bed consists of fuel during operation.

SOLIDS WITHDRAWAL

Spent bed material is withdrawn from the bottom of each bed and cooled by a water cooled screw conveyor before passing to a solids storage silo. The material is hauled by truck to a landfill in dry form.

TABLE 1. GEORGETOWN UNIVERSITY FLUIDIZED-BED BOILER OPERATING CONDITIONS

Parameter	Design conditions	Conditions during monitoring program
Steam flow	100,000 lb/hr	50,000-60,000 lb/hr
Outlet temp./pressure	Saturated 414°F/275 psig or 493°F/625 psig	414°F/275 psig
Bed dimensions	19'-4" x 11'-0 (2 segments)	
Coal characteristics		
Type	Bituminous	
Heating value	12,750 Btu/lb	
Ash %	7.9%	10-15%
Moisture %	5.0%	
Sulfur %	3.29%	1.5-2.5%
Combustion parameters		
Expanded bed depth	4-1/2 ft	2 to 2.5 ft
Bed operating temperature	1594°F	1450°-1550°F
Fluidizing velocity	8 ft/sec	4-6 ft/sec
Freeboard height	8 ft	
Bed tubes	Sloped	
Segment separation	Partition wall	
Ca/S ratio (for SO_2 compliance)	3	2-10
Coal feed system	Stoker (2) - side wall mount	
Coal size	1-1/4" x 1/4"	
Coal flow rate	9,565 lb/hr	5,000-6,500 lb/hr
Limestone size	1/8" x 16 mesh (0.0469")	
Limestone flow rate	3,133 lb/hr	1,500-4,500 lb/hr
Reinjection flow rate	7,500 lb/hr	Unknown
Efficiency (thermal)	83.51%	65-70%
Turndown capacity	4 to 1	

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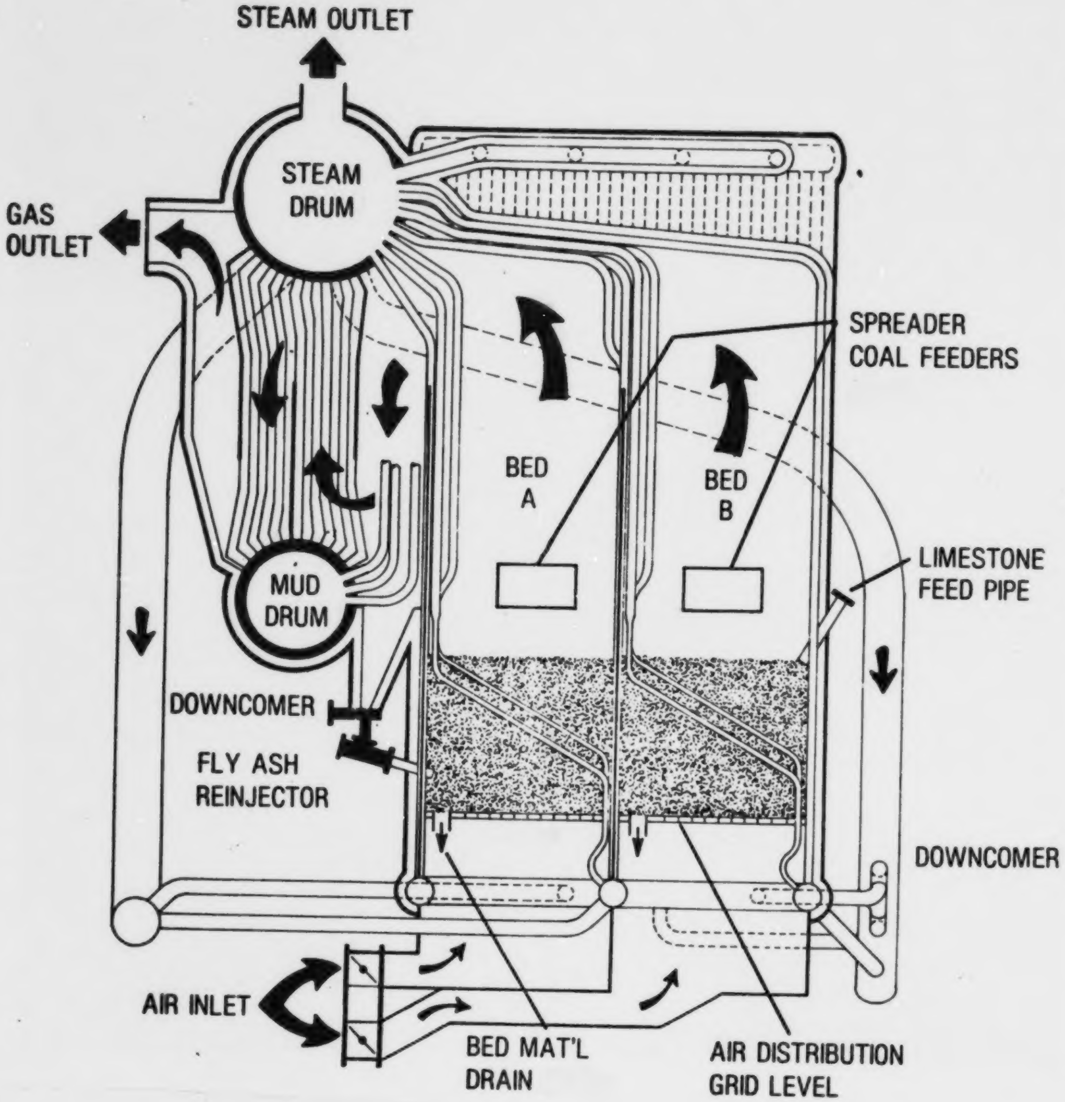
STEAM OUTLET
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BED B
LIMESTONE FEED PIPE
MUD DRUM
DOWNCOMER
FLY ASH REINJECTOR
DOWNCOMER
AIR INLET
BED MAT'L DRAIN
AIR DISTRIBUTION GRID LEVEL

Figure 1. Cross sectional view of Georgetown University fluidized-bed boiler.[4]

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EMISSION CONTROL

Sulfur dioxide emissions are controlled by burning coal in the presence of limestone. Limestone is calcined upon entrance into the bed and a surface reaction occurs in which the lime is sulfated to form $CaSO_4$, by the reaction:

$$SO_2 + CaO + 1/2\ O_2 \rightarrow CaSO_4$$

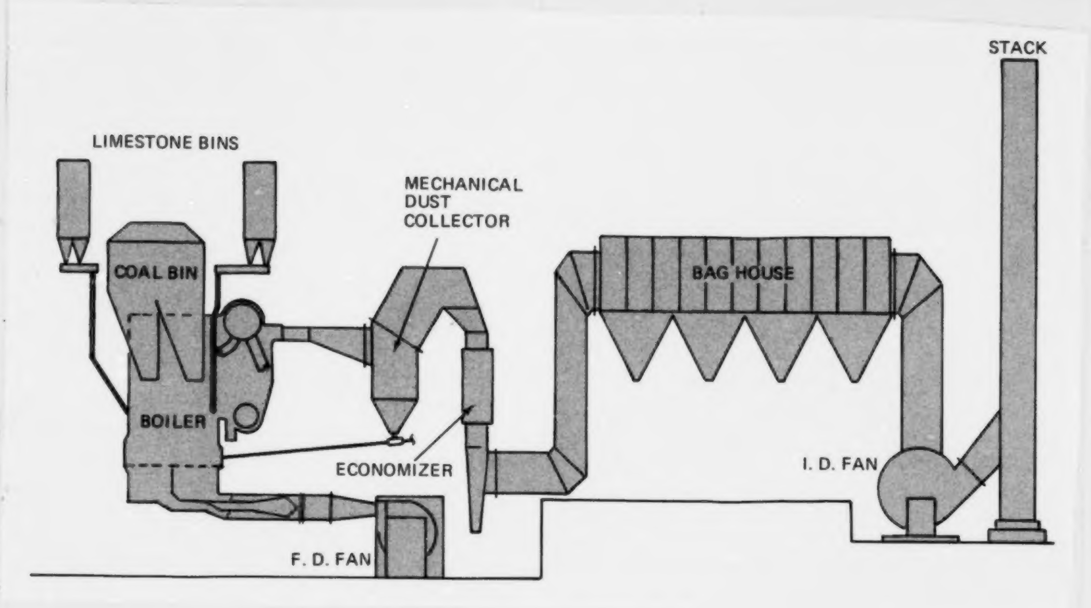
As noted in Table 1, design Ca/S ratio is 3:1 to meet the District's air emission standards.

The FBB is designed to achieve NO_x control inherently below the D.C. emission limitation of 301 ng/J. At the average operating temperature of 868°C (1594°F), formation of thermal NO_x is suppressed. Fuel-derived NO_x is chemically reduced by the presence of carbon monoxide (CO) in the bed and by char recirculated from the multiclone. When the FBB is operated according to specified design/operating procedures, no modifications are necessary to operate within applicable NO_x emission regulations.

Particulate control is effected by passing flue gas through a multicyclone (primary control) and baghouse (final control). The overall flue gas circuit is illustrated in Figure 2.[5]

Flue gas, flowing through the freeboard zone, passes vertically downward through a waterwall mechanical separator before entering the convection bank. This cavity separates the larger dust particles from the flue gas stream for recycling into the bed.

The boiler convection bank consists of two flue gas passes separated by a finned panel. Flue gas passes through the boiler bank and into the multicyclone collector. Fly ash collected in the multicyclone is reinjected to bed A. Flue gas then flows through an extended surface economizer, where the flue gas temperature is reduced to 400°F before passing through the baghouse collector. An induced draft fan downstream of the baghouse maintains the furnace pressure at minus 0.5 in. water column just above the bed, and provides the draft required to convey the flue gas from the furnace through the stack to the atmosphere. Fly ash collected in the baghouse is transported to a storage silo and is then hauled to a landfill in dry form.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LIMESTONE BINS
MECHANICAL DUST COLLECTOR
COAL BIN
BAG HOUSE
BOILER
ECONOMIZER
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Figure 2. GU FBB particulate control equipment.[5]

SECTION 4

DESCRIPTION OF THE TEST PROGRAM

DESCRIPTION OF CONTINUOUS EMISSION MONITORING SYSTEM

The Georgetown University continuous emission monitoring system (CEMS) is an extractive type system that continuously analyzes flue gas emissions to the atmosphere. Sensors are present within the system for measuring SO_2, NO_x, O_2, CO_2 and CO. The system is supplied by Pace Engineering, and a general schematic of the system configuration is shown in Figure 3. Flue gas is extracted through a sintered probe filter and is transported to an instrument shelter through heat-traced Teflon tubing. Inside the instrument shelter, the sample stream passes through a pump and is then split into two streams. One stream passes through a Thermo Electron Co. (TECO) Model 900 conditioner, and the other sample stream passes through a condensation system. Table 2 contains a listing of the instruments used in the system and denotes the mode of sample conditioning required for pollutant detection by each instrument. Sulfur dioxide and NO_x sample streams are conditioned in the Model 900 module where the influent stream is diluted with air by a factor of 10 to 1. Dilution also reduces the moisture level of the sample stream by a factor of 10 and provides a constant sample matrix (i.e., constant O_2 and CO_2 concentration) that simplifies data interpretation in the Model 40 SO_2 analyzer and eliminates the fluorescence quenching problem.

Levels of CO, CO_2, and O_2 are monitored directly without sample dilution. These sample streams are conditioned by filtering particulate through a coarse probe filter and backup fiber filters. Moisture is removed using a condenser coil.

Data are normally recorded using a 10-in. multipoint strip chart recorder. For this program, GCA installed single-channel strip chart recorders for each sensor (with the exception of the opacity monitor) to provide an additional hard copy and to simplify the subsequent data digitizing step.

Calibration gases are injected at the probe interface connection through a motorized three-way ball valve. This injection point allows calibration gases to flow through the entire CEM system (with the exception of the probe and stack filter). Calibration gas can also be injected directly into the analyzer, but this mode of calibration was not used during the test program.

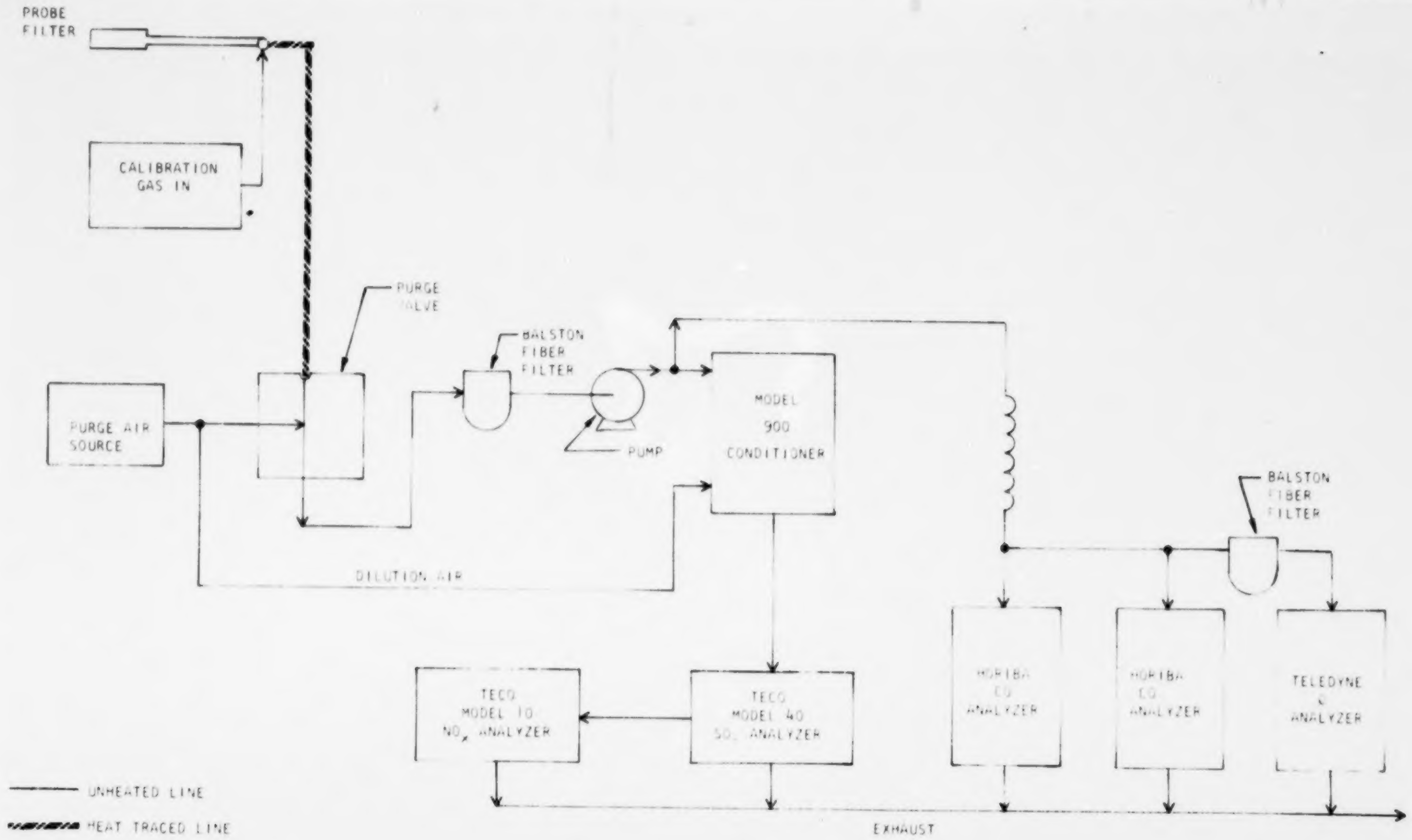
PROBE FILTER
CALIBRATION GAS IN
PURGE VALVE
PURGE AIR SOURCE
BALSTON FIBER FILTER
PUMP
MODEL 900 CONDITIONER
DILUTION AIR
BALSTON FIBER FILTER
HORIBA CO ANALYZER
HORIBA CO ANALYZER
TELEDYNE ANALYZER
TECO MODEL 10 NO_x ANALYZER
TECO MODEL 40 SO_2 ANALYZER
EXHAUST
UNHEATED LINE
HEAT TRACED LINE

Figure 5. Georgetown University CEMS configuration.

TABLE 2. GEORGETOWN CEMS GASEOUS POLLUTANT ANALYZERS

Pollutant	Analyzer manufacturer	Model	Type	Conditioning principle	Instrument range	Measuring range
SO_2	Thermo Electron	40	Pulsed fluorescent	Filtration/ dilution	100 ppm	1000 ppm
NO_x	Thermo Electron	10AR	Chemi-luminescent	Filtration/ dilution	100 ppm	1000 ppm
CO	Horiba	AIA-21	NDIR	Filtration/ condensation	1000 ppm	1000 ppm
CO_2	Horiba	AIA-21-AS	NDIR	Filtration/ condensation	20%	20%
O_2	Teledyne		Electro-chemical	Filtration/ condensation	25%	25%

81-98-6

Sensor Detection Principles

Sulfur Dioxide--

Sulfur dioxide is monitored by the TECO Model 40 pulsed fluorescence analyzer. The Model 40 operates on a fluorescence principle in which a pulsing ultraviolet continuum source (broadband ultraviolet light) perpendicular to the detector assembly is used to excite SO_2 molecules to an elevated energy state. The SO_2 molecules emit a characteristic wavelength on the return to the ground energy state that is proportional to the population (concentration) of SO_2 molecules. The luminescence is detected by a photomultiplier tube and electronically processed to generate a signal proportional to the SO_2 in the sample (calibration) gas. A schematic of a typical fluorescence analyzer is shown in Figure 4. The TECO instrument uses a modulated ultraviolet source versus a continuum source to provide a stabilized output signal and to simplify the electronic signal processing sequence.

Fluorescence techniques are highly affected by the sample matrix. If the sample matrix is not constant, quenching of the monitor signal results. The monitoring data can be in error approaching 20 percent, if sample matrix variations are not accounted for or maintained constant. The CEMS sample dilution conditioning system minimizes any quenching problem.

Oxides of Nitrogen--

Total oxides of nitrogen are monitored using the TECO Model 10AR chemiluminescence NO_x analyzer. The detection principle is based on the gas phase reaction that occurs between nitric oxide (NO) and ozone (O_3) as shown below:

$$NO + O_3 \rightarrow NO_2^* \qquad (1)$$

$$NO_2^* \rightarrow NO_2 + h\nu \qquad (2)$$

Excess O_3 instantaneously reacts with the NO molecules in the sample gas to form nitrogen dioxide (NO_2) molecules at an elevated energy state (NO_2^*). When excited NO_2 molecules return to the ground state, a characteristic wavelength of light (chemiluminescence) which is proportional to the original concentration of NO is emitted. This intensity is sensed by a photomultiplier tube and processed electronically to provide a signal proportional to the NO concentration.

To provide a signal proportional to the total NO_x concentration, the Model 10AR is equipped with a converter that quantitatively reduces NO_2 to NO. The NO concentration is then determined using the chemiluminescence technique. Figure 5 contains a schematic of a typical NO_x monitor.

Matrix interferences such as optical quenching are minimized in the Model 10AR by maintaining the reaction chamber at an absolute pressure approaching 1 torr. By maintaining low pressure conditions, the molecular population per unit volume is low. As a result of the low population, the quenching of the resultant light emission is greatly reduced.

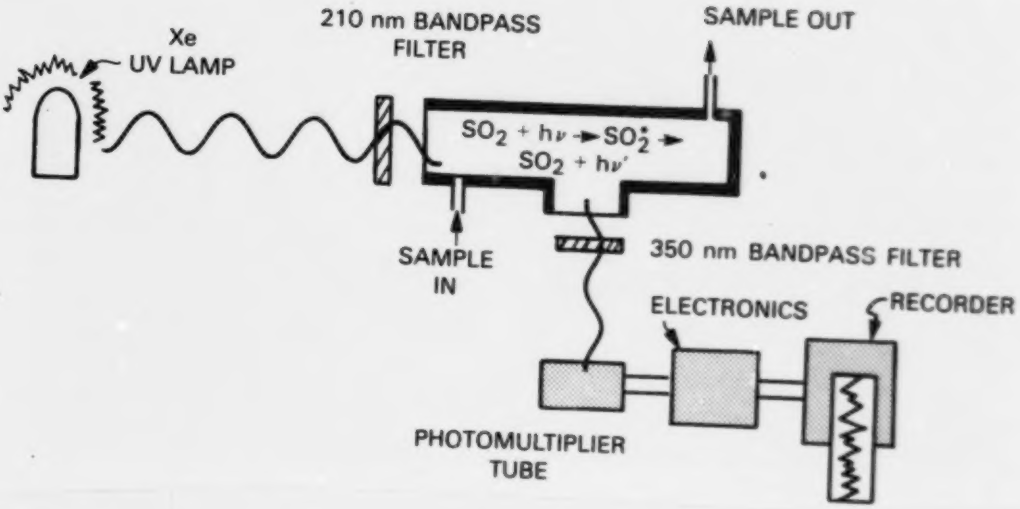
Xe
UV LAMP
210 nm BANDPASS
FILTER
SAMPLE OUT
$SO_2 + h\nu \rightarrow SO_2^* \rightarrow SO_2 + h\nu'$
SAMPLE
IN
350 nm BANDPASS FILTER
ELECTRONICS
RECORDER
PHOTOMULTIPLIER
TUBE

Figure 4. Schematic diagram of a typical SO_2 fluorescence analyzer.[6]

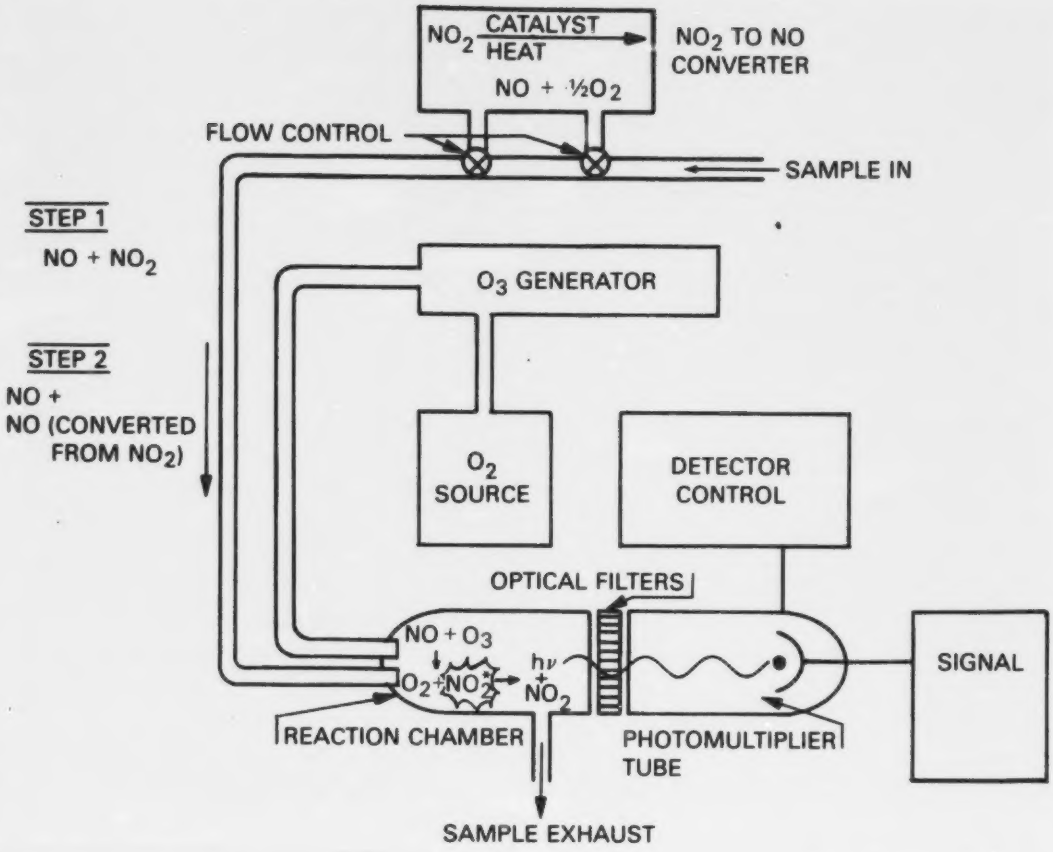
NO2 CATALYST HEAT NO + ½O2
NO2 TO NO CONVERTER
FLOW CONTROL
SAMPLE IN
STEP 1
NO + NO2
STEP 2
NO + NO (CONVERTED FROM NO2)
O3 GENERATOR
O2 SOURCE
DETECTOR CONTROL
OPTICAL FILTERS
NO + O3
O2 + NO2*
hν + NO2
SIGNAL
REACTION CHAMBER
PHOTOMULTIPLIER TUBE
SAMPLE EXHAUST

Figure 5. Schematic diagram of a typical NO_x chemiluminescence analyzer.[6]

Oxygen--

Diluent concentrations are measured using the Teledyne electrochemical analyzer. This sensor operates on a polarographic principle in which oxygen diffuses through a semipermeable membrane and becomes soluble in an electrolytic solution. A current flow is subsequently produced in the electrolyte and is measured by the sensing electrode as shown in Figure 6. To complete the circuit, a reference electrode undergoes an opposite reaction. The polarographic cell, in turn, produces a signal proportional to the original concentration of O_2.

Carbon Monoxide/Carbon Dioxide--

Carbon monoxide and CO_2 concentrations are measured using the Horiba Model AlA nondispersive infrared (NDIR) analyzers. The detection principle of these analyzers is based on the absorption of infrared radiation by the pollutant laden sample gas. Horiba uses a dual cell approach in which the sample gas is passed through one cell, and a nonabsorbing reference gas is passed through the other. In this manner, the infrared (IR) radiation that is passed simultaneously through both cells produces the net effect of negating interference or matrix responses. The detector cell senses the attenuation of the IR source and electronically provides a signal proportional to the original pollutant concentration (CO or CO_2). Figure 7 is a simplified schematic of an NDIR analyzer.

SYSTEM CERTIFICATION

Prior to the initiation of the data collection phase of the program, the continuous monitoring system was subjected to the performance tests delineated in the October 10, 1979, Federal Register.[7] These performance tests are a proposed revision to Appendix B of 40 CFR Part 60. The proposed tests were conducted since the emission data are to be used to support proposed new source performance standards. Future monitoring requirements specified under any new emission regulations would incorporate use of the proposed monitoring requirements.

The overall testing phase for a short-term monitoring test involves an initial 168-hour conditioning period during which the system is allowed to sample flue gas and must operate without major adjustments or malfunctions. This period demonstrates that the instrument system is capable of undergoing the performance tests scheduled during the Operational Test Period (second week). A listing of all monitoring criteria for the Operational Test Period is contained in Table 3. Since the Georgetown system had been in operation for over 1 year prior to the test program, the 168-hour conditioning period was not repeated.

The performance specifications quantify short- and long-term drifts, system hysteresis (calibration error), total system response time, and accuracy of the system relative to the applicable reference method. Methods 3, 6, 7, and 10 are the applicable reference methods for O_2, SO_2, NO_x, and CO that are to be used during the relative accuracy tests. Methods 3, 6, and 7 must be performed concurrently because the data are compared on the basis of emission factors.

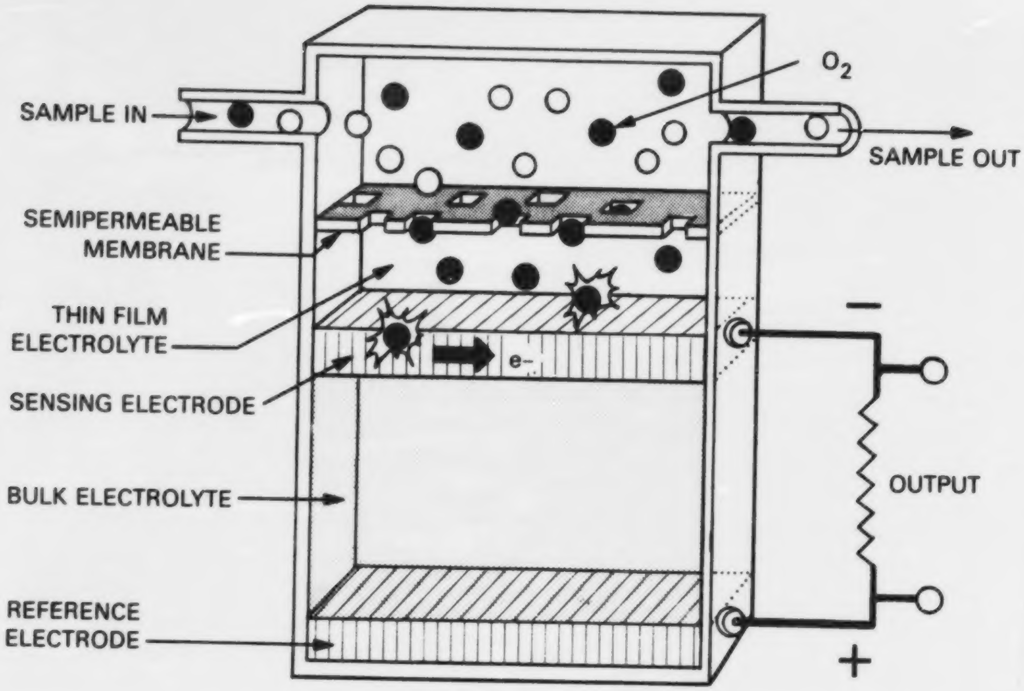
O2
SAMPLE IN
SAMPLE OUT
SEMIPERMEABLE MEMBRANE
THIN FILM ELECTROLYTE
e−
SENSING ELECTRODE
−
OUTPUT
BULK ELECTROLYTE
REFERENCE ELECTRODE
+

Figure 6. Schematic diagram of a typical electrochemical transducer-polarographic process.[6]

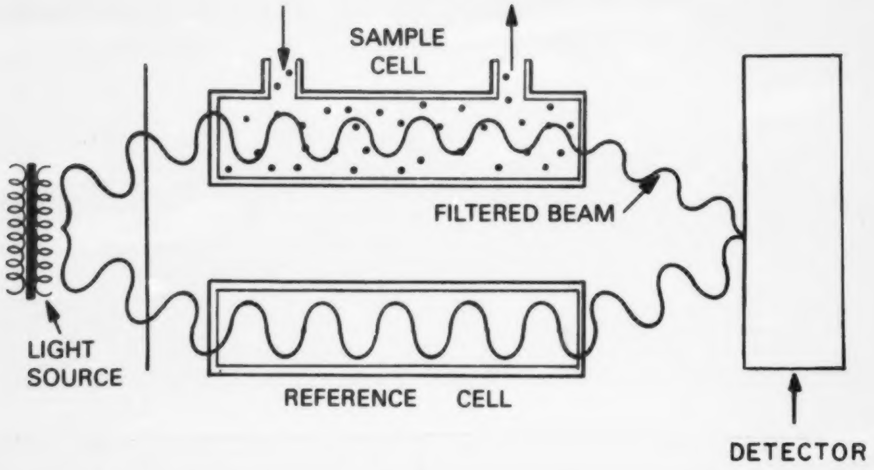
SAMPLE CELL
FILTERED BEAM
LIGHT SOURCE
REFERENCE CELL
DETECTOR

Figure 7. Simplified schematic diagram of a nondispersive infrared analyzer.[6]

TABLE 3. PERFORMANCE SPECIFICATION TEST CRITERIA

Test	CO^a	SO_2/NO_x	CO_2/O_2
Conditioning period	$\geq$ 168-hr	$\geq$ 168-hr	$\geq$ 168-hr
24-hr zero drift	$\leq$ 2% span	$\leq$ 2% span	$\leq$ 0.5% O_2
24-hr cal. drift	$\leq$ 2.5% span	$\leq$ 2.5% span	$\leq$ 0.5% O_2
2-hr zero drift	$\leq$ 1% span	$\leq$ 2% span	$\leq$ 0.4% O_2
2-hr cal. drift	$\leq$ 2% span	$\leq$ 2% span	$\leq$ 0.4% O_2
Mid-level cal. error	$\leq$ 5%	$\leq$ 5%	$\leq$ 5%
High-level cal. error	$\leq$ 5%	$\leq$ 5%	$\leq$ 5%
Response time	$\leq$ 10 min	$\leq$ 15 min	$\leq$ 15 min
Relative accuracy	$\leq$ 10% of the mean reference value	$\leq$ 20% of the mean in terms of emission rate	$\leq$ 0.5% absolute

[a] Certification of the CO monitor is not required for coal-fired boilers.

The relative accuracy portion of the performance tests was repeated during the data collection period. This was done to demonstrate the continued accuracy of the system and to serve as a data calibration measure.

SYSTEM OPERATION

During the period of August 27 through September 22, 1980, GCA used the Continuous Emissions Monitoring System currently installed and operated by the Georgetown University Physics Department. GCA personnel operated the CEMS to ensure data quality consistent with the program objectives.

On a daily basis, the continuous analyzers were calibrated by introducing a zero and two upscale calibration gases at the probe for each emission parameter. Nitrogen was used as the zero gas for all sensors and the upscale calibration gases were as stated in Table 4. Calibration gases were prepared by Airco according to the EPA traceability protocol and, therefore, were not analyzed by GCA.

TABLE 4. CALIBRATION GASES

Parameter	Instrument	Calibration mixture	Mid-level	High-level
SO_2	TECO Model 40	SO_2/Air	474 ppm	946 ppm
NO_x	TECO Model 10	NO/N_2	250 ppm	1020 ppm
CO	Horiba AIA-21	CO/N_2	420 ppm	840 ppm
O_2	Teledyne	O_2/N_2	4.65%	14.2%

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During the continuous monitoring test program, GCA noted a series of problems that resulted in restricted flowlines, condensate in the sample lines, and the subsequent loss of flow to the instruments from plugged capillaries and other components. These problems are discussed in Section 6.

COAL AND LIMESTONE SAMPLING AND ANALYSIS

Coal samples were collected at the spreader stokers feeding beds A and B for subsequent determination of ultimate and proximate analysis. Limestone samples were collected at the weigh belt feeders to each bed for subsequent analysis of calcium content. In addition to several daily composite samples of each material, hourly coal samples were taken throughout a 7-day period, and hourly limestone samples were collected throughout a 2-day period.

Coal sulfur concentration and heating value were used to compute boiler inlet SO_2 loading in ng/J and SO_2 reduction efficiency. Coal sulfur concentration was used in conjunction with limestone calcium concentration to compute Ca/S molar feed ratios for correlation with SO_2 emission rates and desulfurization efficiency. All details of the sampling and analysis procedures are reported in Section 5.

PARTICULATE SAMPLING

Flue gas particulate concentrations were determined at the stack during two separate test periods using EPA Reference Method 5. During each test period, a total of three replicates were performed, each set constituting one test run. The two test runs were conducted on August 23 and September 13.

Each replicate test was conducted by traversing through the existing ports on the third stack sampling level. This location conformed to the sampling location criteria specified in EPA Method 5. A total of 12 traverse points were sampled for 5 minutes each constituting a total sampling time of 1 hour per replicate test.

DATA REDUCTION SYSTEM

Computer Techniques

A computerized data reduction system was used to process the continuous monitoring test data. Process operating data, other than coal and limestone feed rates, were keypunched onto computer cards. All emission data and coal and limestone feed rates were input into the computer by direct digitation of strip chart recordings. Where emissions data were missing due to strip chart paper jams, data were accessed from the Georgetown multipoint recorder and placed in the data file.

All of the data were divided into three sets. The first set, called Bed Data, contained process parameters collected from the Plant Hourly Operations Data Log. These parameters included bed temperature in degrees Fahrenheit, superficial velocity in feet per second, and bed depth in inches. These three parameters were available for both Beds A and B, and the average of the two was calculated for each hour of operation. Other process parameters included

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in this data set were boiler load in pounds/hour, coal heating value in Btu/lb, and the coal sulfur content. In cases where the actual coal sulfur content and heating value were not available, the last legitimate hourly value was used for the calculations. This is indicated on the computer printouts.

The second data set, called Coal Data, contained coal feed in pounds/hour, and limestone feed in pounds/hour. These parameters were taken from strip chart records for Beds A and B, and the sum of the two was calculated for each 15-minute average.

Data set three, called Outlet Data, contained all emission data collected by the continuous emission monitors. The parameters in this set included SO_2, NO_x, and CO in ppm, and percent O_2.

All strip charts for data sets two and three were digitized into 15-minute averages and transferred to cards. Data set 1 contains hourly averages which were recorded directly from the boiler operation process logs to cards. All cards were then read into computer storage.

The printouts included in Appendix A show 15-minute, hourly, and daily averages for all parameters and calculations. At least two 15-minute data points per hour were required to calculate an hourly average, and daily averages were calculated by using all valid hourly averages. For a daily average to be valid, at least 18 valid hourly averages were required. The printout indicates those days that less than 18 hourly averages were present.

Process and Emission Calculations

To adequately interpret FBB performance results, several calculation procedures were incorporated into the computer program. Gas phase residence time in the bed was determined based on the following equation:

$$RT(sec) = EBD(ft)/SV(ft/sec) \tag{3}$$

where RT(sec) is the gas residence time in seconds,

EBD(ft) is the expanded bed depth in feet, and

SV(ft/sec) is the superficial velocity in feet per second.

The following calculation was used to determine the Ca/S molar feed ratio:

$$Ca/S = \frac{LSF \times 0.95 \times 0.4 \times 32}{CF \times \frac{\%S}{100} \times 40} \tag{4}$$

where Ca/S is the Ca/S ratio,

LSF is the 15-minute average limestone feed rate, lb/hr,

CF is the 15-minute average coal feed rate, lb/hr, and

%S is the coal sulfur content.

The theoretical boiler inlet SO_2 loading was calculated by using the following equation:

$$ESO_2 \text{ (inlet)} = \frac{0.01 \times \%S \times 2}{HC} \times 10^6 \text{ conv} \qquad (5)$$

where ESO_2 (inlet) is the inlet SO_2 loading in ng/J,

%S is the percent sulfur in the coal,

HC is the coal heating value, dry basis, Btu/lb, and

conv is the conversion factor to convert lb/10^6 Btu to ng/J, equal to 429.9.

Outlet emission rates were calculated using the F factor method but the F factor used was corrected to account for combustion efficiency estimated at approximately 85 percent. Combustion efficiency was derived based on the carbon content of solid material streams reported in the 3rd Quarter 1980 Report prepared by Georgetown University.[4]

Flue gas volume per pound of coal feed (V) was calculated according to the equation:

$$V = \left[\frac{20.9}{20.9-O_2(f)}\right]\left[\frac{\%C}{247.7} + \frac{\%H}{104.1} + \frac{\%S}{664.9} - \frac{\%O}{823.9} + \frac{\%N}{2802}\right] 379 \qquad (6)$$

where $O_2(f)$ = flue gas O_2 concentration, %, and

%C, %H, %S, %O, %N are from the coal ultimate analysis. Eighty-five percent of the actual carbon content was used to account for combustion efficiency.

Examination of continuously recorded coal feed rates showed that the data were consistently biased low, considering steam production rates and estimated boiler efficiency, with the latter between 65 to 70 percent during the monitoring program based on available information.[4]

Therefore, hourly coal feed rates were estimated from hourly steam flow rates noted in the FBB operating logs by the equation:

$$\text{Coal feed (lb/hr)} = \frac{\text{steam flow (lb/hr)} \times \text{steam enthalpy}}{\text{coal heating value} \times \text{boiler efficiency}} \qquad (7)$$

where steam enthalpy = 1000 Btu/lb

coal heating value = average of composite values or actual hourly value, if available

boiler efficiency = 70%

The modified F factor, F′, was then calculated from:

$$F'\left(\frac{ft^3}{J}\right) = \frac{\text{Flue gas }(ft^3/hr)}{\text{Heat rate }(J/hr)} \qquad (8)$$

where Flue gas $(ft^3/hr) = V\left(\frac{ft^3}{lb\text{-}coal}\right) \times$ coal feed (lb/hr) (9)

Heat rate (J/hr) = coal (lb/hr) x coal heating value x 1055 J/Btu (10)

Outlet SO_2 emissions (ESO_2) in ng/J were then calculated from:

$$ESO_2\ (ng/J) = SO_2\ (ppm) \times 2.66 \times \frac{10^6\ ng}{m^3\text{-}ppm} \times \frac{1\ m^3}{35.31\ ft^3} \times F'$$

or

$$SO_2\ (ng/J) = SO_2\ (ppm) \times 7.53 \times \frac{10^4\ ng}{ppm\text{-}ft^3} \times F' \qquad (11)$$

Similarly, outlet NO_x emissions (ENO_x) in ng/J were calculated from:

$$ENO_x\ (ng/J) = NO_x\ (ppm) \times 5.41 \times \frac{10^4\ ng}{ppm\text{-}ft^3} \times F' \qquad (12)$$

SO_2 removal efficiency was calculated as follows:

$$\%R.E. = \frac{ESO_2(inlet) - ESO_2(outlet)}{ESO_2(inlet)} \times 100 \qquad (13)$$

where %R.E. is the sulfur removal efficiency, %,

ESO_2(inlet) is the SO_2 inlet loading, ng/J, and

ESO_2(outlet) is the SO_2 outlet emission rate, ng/J.

SECTION 5

COAL AND LIMESTONE SAMPLING AND ANALYSIS

COAL AND LIMESTONE SAMPLING

To develop accurate correlations between desulfurization performance and Ca/S molar feed ratios, several samples of coal and limestone were taken as the materials were fed to the boiler. Coal samples were analyzed by Gilbert/Commonwealth: composite daily samples for proximate and ultimate analysis, and hourly samples for moisture, heating value, ash, and sulfur content. Limestone samples were analyzed by GCA for calcium concentration. Table 5 is an inventory of samples collected.

TABLE 5. INVENTORY OF COAL AND LIMESTONE SAMPLES

Date	Coal	Limestone
8/26	Daily composite	Daily composite
8/27	10 hourly	Daily composite
9/3	Daily composite	Daily composite
9/5	Daily composite	Daily composite
9/11	Hourly	
9/12	Hourly	Daily composite
9/13	Hourly	Hourly
9/14	Hourly	Hourly
9/15	Hourly	Daily composite
9/16	Hourly	Daily composite
9/17	Hourly	Daily composite
9/18	Grab	Grab

All samples were collected by manual grab methods. Coal was retrieved at the spreader stokers and limestone was taken from each weigh belt feeder. Figure 8 indicates the sampling points. These locations were selected because they were the only available points where materials could be sampled just before entry into the bed. Therefore, the time of sampling is equivalent to boiler operating time.

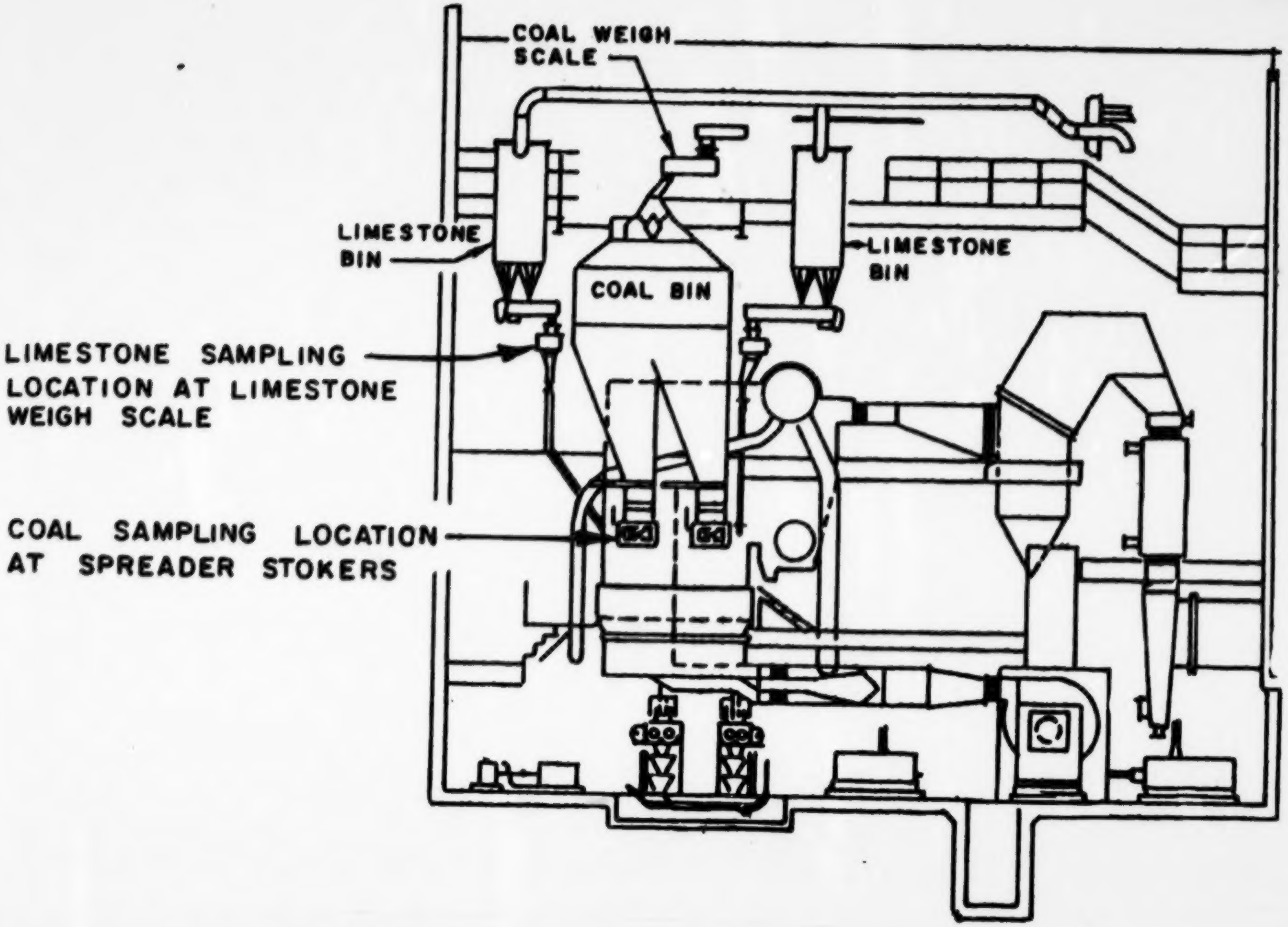
COAL WEIGH SCALE
LIMESTONE BIN
COAL BIN
LIMESTONE BIN
LIMESTONE SAMPLING LOCATION AT LIMESTONE WEIGH SCALE
COAL SAMPLING LOCATION AT SPREADER STOKERS

Figure 8. Sampling locations for collecting coal and limestone.[4]

COAL AND LIMESTONE ANALYSES

Several coal and limestone samples were analyzed to accurately determine the Ca/S molar feed ratio, heat rate, and coal nitrogen content, the latter to determine its impact on NO_x emission rate.

Composite samples of coal collected on August 26, September 3, and September 5 were submitted to Gilbert/Commonwealth Laboratory Services of Reading, Pennsylvania, for determination of proximate and ultimate analysis. The results are reported in Table 6. The sulfur concentrations are unexpectedly low, ranging between 1.4 to 1.8 percent. Design sulfur concentration is approximately 3.0 percent. Therefore, Ca/S ratios are higher than expected because limestone was normally fed to the boiler according to a design mass flow rate. This is the case throughout the continuous monitoring program because measured coal sulfur concentrations were typically 20 to 50 percent below the design value of 3.0 percent. Therefore, even during days of operation when problems that caused excessive limestone feeding were not encountered, Ca/S ratios in the range of 5 to 6 were typical, as opposed to a design Ca/S ratio of 3 to 3.5.

Several hourly coal samples were submitted to Gilbert/Commonwealth for analysis of moisture, heating value, ash, and sulfur content. The results are reported in Table 7. Some composite samples were tested after combining hourly samples, as recorded in the table. Sulfur concentration and heating value data were used to determine inlet SO_2 loadings in ng/J, allowing for subsequent determination of desulfurization efficiency.

GCA used atomic absorption spectrometry to measure the calcium concentration of several limestone samples. The results are reported in Table 8, and suggest that the sorbent in use is almost pure $CaCO_3$. To determine Ca/S molar feed ratios, a factor of 0.95 was applied to the limestone feed rate to represent the feed rate of $CaCO_3$.

TABLE 6. PROXIMATE AND ULTIMATE ANALYSES OF COMPOSITE DAILY COAL SAMPLES

Parameter		August 26		September 3		September 5	
		As received	Dry basis	As received	Dry basis	As received	Dry basis
Total moisture	%	1.64		1.50		1.59	
Volatile matter	%	33.3	33.8	35.5	36.0	35.0	35.5
Fixed carbon	%	51.8	52.7	53.8	54.6	51.0	51.9
Ash	%	13.3	13.5	9.22	9.36	12.4	12.6
Heating value	Btu/lb	12,914	13,130	13,576	13,782	12,945	13,155
Sulfur	% S	1.44	1.46	1.75	1.78	1.47	1.49
Carbon	% C	72.6	73.8	76.1	77.3	72.8	74.0
Hydrogen (excluding H in moisture)	% H	4.74	4.82	4.96	5.04	4.69	4.76
Hydrogen (including H in moisture)	% H	4.92		5.13		4.86	
Nitrogen	% N	1.42	1.44	1.49	1.51	1.49	1.51
Oxygen (excluding O in moisture)	% O	4.86	4.94	4.95	5.02	5.57	5.66
Oxygen (including O in moisture)	% O	6.31		6.28		6.98	

TABLE 7. ANALYSIS OF HOURLY COAL SAMPLES

Day of sample collection	Hour of sample collection	% Moisture	As received			Dry basis		
			% Ash	Btu/lb	% Sulfur	% Ash	Btu/lb	% Sulfur
August 27	10	1.57	13.2	12,846	1.90	13.4	13,052	1.93
	11	1.57	12.0	13,096	1.59	12.2	13,306	1.62
	12	1.54	13.5	12,823	2.25	13.7	13,023	2.29
	14	1.40	10.6	13,313	1.43	10.8	13,502	1.45
	15	1.44	13.8	12,761	1.57	14.0	12,947	1.59
	16	1.55	13.1	12,835	1.48	13.3	13,037	1.50
	17	1.61	11.6	13,131	1.50	11.8	13,346	1.52
	18	1.43	15.0	12,543	1.77	15.2	12,725	1.80
	19	1.66	11.8	13,129	1.40	12.0	13,351	1.42
	20	1.48	11.8	13,117	1.53	12.0	13,314	1.55
September 11	1	1.53	12.3	13,130	1.93	12.5	13,334	1.96
	2	1.62	13.9	12,877	1.72	14.1	13,089	1.75
	3	1.65	14.6	12,697	1.96	14.9	12,910	1.99
	4	1.53	13.6	12,887	1.79	13.8	13,087	1.82
	5	1.39	13.8	12,878	1.74	13.9	13,060	1.76
	6	1.50	13.7	12,851	1.75	13.9	13,046	1.78
	7	1.38	13.9	12,873	1.60	14.0	13,053	1.62
	8	1.62	14.7	12,698	1.82	14.9	12,908	1.85
	9	1.45	12.2	13,099	1.78	12.4	13,292	1.81
	10	1.63	11.7	13,212	1.55	11.9	13,431	1.58
	11	1.48	12.7	12,950	1.61	12.9	13,144	1.63
	12	1.41	11.7	13,173	1.72	11.8	13,361	1.74
	13	1.36	12.6	12,920	1.82	12.8	13,098	1.85
	14	1.68	12.7	13,059	1.64	12.9	13,282	1.67
	15	1.78	12.7	12,960	1.71	12.9	13,195	1.74
	16	1.77	11.7	13,142	1.60	11.9	13,379	1.63
	17	1.49	11.9	13,055	1.58	12.0	13,252	1.60
	18	1.59	13.5	12,769	1.60	13.7	12,976	1.63
	19	1.49	12.8	12,907	1.59	13.0	13,102	1.61
	20	1.87	13.0	12,876	1.63	13.3	13,122	1.66
	21	1.95	11.5	13,148	1.61	11.7	13,410	1.64
	22	1.50	12.8	12,917	1.58	13.0	13,113	1.60
	23	1.26	13.4	12,847	1.62	13.6	13,011	1.64
	24	1.57	12.6	13,000	1.55	12.8	13,208	1.57
September 12	15	1.74	11.4	13,185	1.68	11.6	13,418	1.71
	16	1.80	13.8	12,744	1.86	14.0	12,977	1.89
	17	1.50	14.8	12,649	2.09	15.0	12,841	2.12
	18	1.66	14.2	12,672	2.52	14.5	12,886	2.56
	19	1.76	12.1	13,004	2.01	12.3	13,237	2.05
	20	1.61	12.3	13,022	1.93	12.5	13,236	1.96
	21	1.33	13.0	12,957	1.83	13.1	13,132	1.85
	22	1.72	14.2	12,714	1.98	14.4	12,936	2.01
	23	1.72	12.4	13,026	1.89	12.6	13,254	1.92
	24	1.61	11.9	13,147	1.81	12.1	13,363	1.84

(continued)

TABLE 7 (continued)

Day of sample collection	Hour of sample collection	% Moisture	As received			Dry basis		
			% Ash	Btu/lb	% Sulfur	% Ash	Btu/lb	% Sulfur
September 13	1	1.70	12.0	13,040	1.67	12.2	13,266	1.70
	2	1.50	11.9	13,150	1.66	12.0	13,350	1.69
	3	1.57	11.2	13,258	1.97	11.4	13,470	2.00
	4	1.54	13.1	12,921	1.99	13.3	13,123	2.02
	5	1.53	15.5	12,565	1.61	15.8	12,760	1.63
	6	1.64	9.7	13,477	1.65	9.9	13,702	1.68
	7	1.38	10.7	13,402	1.53	10.8	13,590	1.55
	8	1.46	9.5	13,598	1.57	9.6	13,799	1.59
	9	1.59	11.9	13,170	1.74	12.1	13,383	1.77
	10	1.59	11.7	13,129	1.77	11.9	13,342	1.80
	11	1.48	10.9	13,325	1.38	11.1	13,525	1.40
	12	1.71	13.6	12,863	1.57	13.8	13,087	1.60
	13	1.62	11.6	13,225	1.56	11.8	13,443	1.59
	14	1.31	11.7	13,220	1.39	11.9	13,396	1.41
September 12	1-14	2.09	12.6	12,904	1.79	12.8	13,179	1.83
September 13	15-24	2.06	12.8	12,952	2.20	13.0	13,224	2.25
September 14	1-24	1.75	11.3	13,225	1.92	11.5	13,460	1.95
September 15	1-24	1.67	13.7	12,805	2.14	13.9	13,023	2.18
September 16	1-24	1.47	15.2	12,540	2.16	15.4	12,727	2.19
	24	1.27	15.8	12,610	2.11	16.0	12,773	2.14
September 17	1-24	1.62	15.5	12,642	2.54	15.8	12,851	2.58
	6	1.27	14.4	12,892	1.99	14.6	13,058	2.02
	12	0.98	13.5	13,064	2.23	13.7	13,193	2.25
	18	1.28	13.3	13,033	2.08	13.5	13,202	2.11
	24	1.10	15.9	12,682	2.40	16.1	12,823	2.43
September 18	7	1.37	16.5	12,470	2.39	16.7	12,643	2.42

TABLE 8. CALCIUM CONCENTRATION OF LIMESTONE SAMPLES USING ATOMIC ABSORPTION SPECTROMETRY

Day of sample collection	Type of sample analyzed	Calcium concentration, %
August 27	Composite of 6 grab samples	40
September 3	Composite of 3 grab samples	38.5
September 5	Composite of 2 grab samples	40
September 12	Composite of 4 grab samples	33.5
September 13	Composite of 24 hourly grab samples	35
September 14	Composite of 24 hourly grab samples	34

SECTION 6

RESULTS OF PERFORMANCE SPECIFICATION TESTS AND EVALUATION OF CONTINUOUS MONITORING SYSTEM OPERATION

PERFORMANCE SPECIFICATION TEST PROCEDURES AND RESULTS

Performance specification tests of the Continuous Emissions Monitoring System (CEMS) in use at the Georgetown University FBB were conducted by GCA during the period of August 20 through August 29, 1980. The operational tests were performed in accordance with the U.S. Environmental Protection Agency (U.S. EPA) proposed revisions to the Standards of Performance for New Stationary Sources; Continuous Monitoring Performance Specifications, as published in the October 10, 1979 Federal Register.[5] The SO_2, NO_x and CO continuous monitors were evaluated by the methods outlined in Performance Specification 2 of Appendix B of the EPA Standard and the O_2 monitor was evaluated by Performance Specification 3 of the Standard. The O_2 monitor was used as the diluent monitor instead of the CO_2 monitor because limestone calcination generates CO_2 in the fluidized bed, and would introduce error into the emission rate calculations.

The results of the CEMS Performance Specification Tests are presented in Table 9. All calibration gases used during the performance evaluation were injected at the monitor probe. The two calibration gas concentrations used, other than zero gas, were approximately 50 percent and 90 percent of the monitor span values. All performance tests were conducted while the complete continuous monitoring system was in operation. The following discusses the results obtained for each pollutant monitor by performance parameter. For most of the parameters of concern, the SO_2, NO_x, and CO continuous emission monitors operated according to performance specifications. Some discrepancies were noted for the O_2 monitor.

Calibration Error

Calibration error was based on five monitor calibrations at mid-level and high-level span values using known calibration gas concentrations. Table 10 presents the mid-level and high-level calibration gas concentrations used during the performance tests and the monitor span values.

Calibration error was calculated using the following three equations. The reference value (R.V.) of Equation 3 is each respective calibration gas concentration (i.e., for O_2 it is 4.65 for the mid-level calibration error).

$$\overline{X} = \frac{1}{n} \sum_{i=1} x_i \qquad (1)$$

TABLE 9. SUMMARY OF CONTINUOUS EMISSIONS MONITORING EQUIPMENT PERFORMANCE DURING OPERATIONAL TEST PERIOD (AUGUST 20 TO 29)

Parameter	O_2	SO_2	NO_x	CO	Federal Register performance specification SO_2 and NO_x	 O_2
Mid-level calibration error (percent)	6.8	3.8	3.4	11.9	≤ 5	≤ 5
High-level calibration error (percent)	4.9	7.2	1.5	2.4	≤ 5	≤ 5
Response time (minutes)	4.2	3.6	3.3	4.17	≤ 15.00	≤ 15.00
2-hour zero drift (percent)	0.1^a	1.1	0.3	0.69	≤ 2.0	≤ 0.4
2-hour calibration drift (percent)	0.7^a	1.3	3.0	1.0	≤ 2.0	≤ 0.4
24-hour zero drift (percent)	0.4^a	2.3	0.3	0.57	≤ 2.0	≤ 0.5
24-hour calibration drift (percent)	3.1^a	2.2	4.0	2.28	≤ 2.5	≤ 0.5
Relative accuracy (percent)	—	$11.4(15.2)^b$	$14.4(21.3)^b$	—	≤ 20.0	—

[a] Percent O_2.

[b] Relative accuracies based on ng/J and ppm, respectively.

where: $\overline{X}$ = mean value

n = number of data points

Σx_i = algebraic sum of the individual measurement x_i

TABLE 10. MID-LEVEL AND HIGH-LEVEL CALIBRATION GASES

Calibration gas	Mid-level	High-level	Monitor span value
Oxygen O_2 (%)	4.65	14.2	0-25
Sulfur dioxide (ppm)	474	946	0-1000
Nitric oxide (ppm)	250	1020*	0-1000
Carbon monoxide (ppm)	420	840	0-1000

*Monitor scale was set at 102 percent of span value during tests.

$$C.I._{95} = \frac{t_{.975}}{n\sqrt{n-1}} \sqrt{n(\Sigma x_i^{\,2}) - (\Sigma x_i)^2} \qquad (2)$$

where: $C.I._{95}$ = 95 percent confidence interval estimate of the average mean value.

$t_{.975} = t_{(1-\alpha/2)}$

$$C.E. = \frac{|\overline{X}| + |C.I._{95}|}{R.V.} \times 100 \qquad (3)$$

where: C.E. = calibration error.

$|\overline{X}|$ = absolute value of the arithmetic mean (from Equation 1).

$|C.I._{95}|$ = absolute value of the 95 percent confidence interval (from Equation 2).

R.V. = reference value - each respective calibration gas concentration.

As shown in Table 9, the NO_x monitor was operating in conformance with mid-level and high-level calibration error performance specifications. The SO_2 and CO monitors were meeting one of the calibration error specifications but not both. The O_2 monitor met the high-level calibration error specification but did not meet the mid-level specification.

Response Time

The response times reported in Table 9 represent the slower of the average of three sets of upscale and downscale determinations. The upscale determination is the time it takes the monitor to respond from a zero calibration gas reading to a stable stack effluent reading. Alternatively, the downscale determination is the time it takes the monitor to respond from a high-level calibration gas concentration to a stable stack effluent reading. Table 10 identifies the high-level gas concentrations used to determine downscale response time. The upscale and downscale response time means were determined by Equation 1, with the slower value reported. Reporting the slower value identifies an important operational limitation of the monitor. As shown in Table 9, the response time of each monitor was faster than the 15-minute performance specification.

Drift Tests

Zero and calibration drift tests disclose an analyzer's ability to remain accurately calibrated over a period of time. Seven 24-hour and 15 2-hour zero and calibration drift tests were performed for each monitor, with the results shown in Table 9. The span gas concentrations used to perform the zero and calibration drift tests for each monitor are presented in Table 11.

TABLE 11. ZERO AND CALIBRATION DRIFT TEST SPAN GASES

	2-hour		24-hour		
Pollutant/diluent monitor	Zero drift	Calibration drift	Zero drift	Calibration drift	Monitor span value
Oxygen (%)	0	14.2	0	14.2	25
Sulfur dioxide (ppm)	0	946	0	474	1000
Nitric oxide (ppm)	0	1020	0	250	1000
Carbon monoxide (ppm)	0	840	0	840	1000

The drift values presented in Table 9 were calculated using Equations 1, 2, and 3. In Equation 3, the reference values (R.V.) are the respective monitor span values. The SO_2 and CO monitors met the 2-hour zero and calibration drift specifications. The NO_x and O_2 monitors met the 2-hour zero drift performance specification but not the 2-hour calibration drift standard.

With respect to the 24-hour zero drift tests, all monitors, except the SO_2 monitor, were within their respective performance specifications. The SO_2 monitor, however, was only slightly above the 2 percent cutoff. Only the SO_2 and CO monitors were within the 24-hour calibration drift performance specification. The EPA has not specifically addressed CO analyzers with respect to CEM performance specifications. The performance specification parameters calculated for the Georgetown CO monitor were assessed for comparative purposes only.

Monitor and System Relative Accuracy

Relative accuracy of the SO_2 and NO_x monitors were determined during the operational test period and are presented in Table 9. In addition to determining the relative accuracy of the analyzers based on measured gas concentrations, the relative accuracy of the analyzer/diluent monitor systems were determined. The latter was calculated based on emission rates; i.e., mass per unit caloric value (nanograms/Joule). This method of calculating relative accuracy is required for fossil-fuel fired steam generators, and illustrates the accuracy of the SO_2 or NO_x monitor in combination with the O_2 monitor.

U.S. EPA reference test methods 6 and 7 were conducted simultaneously with monitor measurements to compare corresponding SO_2 and NO_x flue gas concentrations. Monitor readings were recorded taking into account the response time for each analyzer. Twelve runs of test Methods 6 and 7 were conducted during the operational test period. However, data from only 11 Method 6 runs and 9 sets of Method 7 runs were used to calculate the relative accuracy of the SO_2 and NO_x monitors, respectively. According to performance specifications a minimum of nine data sets must be used to calculate relative accuracy. If this requirement is met, questionable data from other sets can be eliminated. The relative accuracy of the SO_2 and NO_x analyzers was calculated using Equations 1, 2, and 3, where in Equation 3 the reference value (R.V.) is the average reference method concentration.

The relative accuracy of the SO_2 and NO_x pollutant analyzer/diluent monitor system based on emission rates in ng/J were calculated using Equations 1 through 5. In Equation 3, the reference value (R.V.) is the average calculated emission rate for each respective pollutant.

$$E = \text{ppm } SO_2 \left[\frac{64.062 \text{ ng}}{0.02404 \times 10^{-3} \text{ m}^3\text{-ppm}}\right]\left[\frac{2.63 \times 10^{-7} \text{ dscm}}{\text{Joule}}\right]\left[\frac{20.9\%}{20.9 - O_2\%}\right] \quad (4)$$

$$E = \text{ppm } NO_x \left[\frac{46.0 \text{ ng}}{0.02404 \times 10^{-3} \text{ m}^3\text{-ppm}}\right]\left[\frac{2.63 \times 10^{-7} \text{ dscm}}{\text{Joule}}\right]\left[\frac{20.9\%}{20.9 - O_2\%}\right] \quad (5)$$

As shown in Table 9, calculated relative accuracy for the SO_2 and NO_x monitors, in combination with the O_2 monitor, were within the 20 percent performance specification. Alone the SO_2 monitor was within the 20 percent standard but the NO_x monitor was slightly above the specification at 21.3 percent.

EVALUATION OF CONTINUOUS MONITORING SYSTEM OPERATION

During the continuous monitoring test program, problems were encountered that resulted in restricted flowlines, condensate in the sample lines, and subsequent loss of flow to the instruments from plugged capillaries and other components.

Condensate formation and resultant plugging of sample gas transport lines was a direct result of the CEM system configuration. The flow stream exiting the purge valve (see Figure 3 in Section 4) is unheated and allows moisture to condense in the connecting line and also in the Balston filter. This line and the final filter must be heated to prevent condensation. A wet filter readily plugs in the presence of particulate. The condensate in the Balston filter was blue, which was probably a result of highly acidic condensate dissolving the stainless steel components.

The acidic condensate is degrading to the components downstream. For example, the Model 900 conditioner is equipped with capillary restrictors where condensate will cause plugging and equipment corrosion. The sample stream must be completely filtered and dried before entering the Model 900 or other analytical equipment. Acidic condensate also formed a corrosion product which plugged and hindered operation of solenoid valves within the CEM system. For source monitoring, large diameter ball valves with Teflon seats and Carpenter 20 bodies are more desirable. Solenoid valves have a tendency to stick totally or partially in one position which may result in leaks.

Condensate formation also affects sample integrity. Condensate in the presence of oxidants or bases will remove SO_2, CO_2, and NO_2 from the sample stream in varying degrees, resulting in detection errors.

Moisture and oil residue are introduced into the system by the compressed air system. This system consists of an oil compressor without degreasing or drying components. To be compatible with the system, the compressor system must supply a grease/moisture-free source. The grease residue plugs capillary assemblies.

Sample flow restriction was noted with the SO_2 and NO_x analyzers. This was not because of plugging, but was caused by the plumbing configuration. When both instruments are operated in the dilution mode, the effluent from the SO_2 analyzer is passed directly to the NO_x analyzer. Because both analyzers are equipped with back pressure regulator systems, the downstream analyzer controls sample flow rate. Restricted exhaust lines (resulting from plumbing and valving configurations) further complicated the problem. Both instruments are designed for separate sample input and exhaust.

Flow control problems were also found for the remaining three analyzers (CO, CO_2, O_2) because of condensate in the sample lines and back pressure on the exhaust lines. All analyzers must have a separate adjustable input and an unrestricted exhaust line.

In consideration of these problems, GCA performed multiple span checks daily to verify monitoring data and periodically throughout each monitoring day emptied condensate traps and replaced secondary particulate filters to avoid plugging. Since calibration gases were passed through the entire system, it was possible to ensure valid data.

GCA prepared a topical report recommending configuration modifications which would enhance the reliability of the system.[8] Two options were presented. Option 1 presented a system utilizing a dual pass condensor for moisture removed while the second option achieves moisture removal by permeation distillation.

Recommended Option 1 - Filtration/Condensation

The Georgetown University monitoring equipment could be modified as shown in Figure 9. In the system, the flue gas is extracted from the stack through a sintered Hastalloy filter and transported to the instrument system through a heat-traced Teflon line. The effluent from the heat-traced line is passed directly into a heated box (220°F) that contains a purge valve and a large surface area spun glass filter. Sample gas exiting the filter is transported to the primary condenser through insulated line. The sample stream then passes from the condenser to a main pump that provides a pressurized stream to the Model 900 conditioner and to the secondary condenser. Sample gas exiting the secondary condenser is then distributed by way of a valving array to the NO_x, CO, CO_2, and O_2 analyzers. The effluent from the Model 900 is passed through the SO_2 analyzer only.

The dual condenser coils can be placed in the same cooler to economize on hardware. For best results, these coils should be made of Teflon and maintained at 35°F.

Calibration gases are introduced at the probe interface through a valving array. To economize on calibration gases, several components can be combined in the same cylinder. A more detailed discussion of this is provided in a following subsection.

Recommended Option 2 - Filtration/Permeation Distillation

The second applicable option to the Georgetown University monitoring configuration is shown in Figure 10. Particulate is removed as recommended under Option 1. Moisture is removed by a permeation dryer. The dryer is composed of a Nafion polymer tubing bundle mounted within a purge cavity. Sample gas is passed through the tubing bundle and the vaporous moisture permeates to the outside of the bundle where the air flow through the purge cavity carries the permeant away from the polymer bundle. By maintaining a low pressure dry purge flow around the bundle, the dryer efficiently removes moisture. Dryer effluents typically contain less than 0.5 percent moisture. The remainder of the system is equivalent to recommended Option 1.

Calibration Gases

Calibration gases should be injected at the stack interface to account for all systematic errors. To economize on cylinder gases and to expedite the calibration sequence, it is legitimate to combine several components in the same cylinder. The following combinations are acceptable:

- $SO_2/O_2/CO/CO_2$ in a nitrogen diluent
- $NO/SO_2/CO_2/CO$ in a nitrogen diluent

We recommend use of the calibration standards shown in Table 12. This calibration sequence will require a total of 4 span bottles and 1 nitrogen bottle. Currently, 1 nitrogen cylinder and 10 span cylinders are being used.

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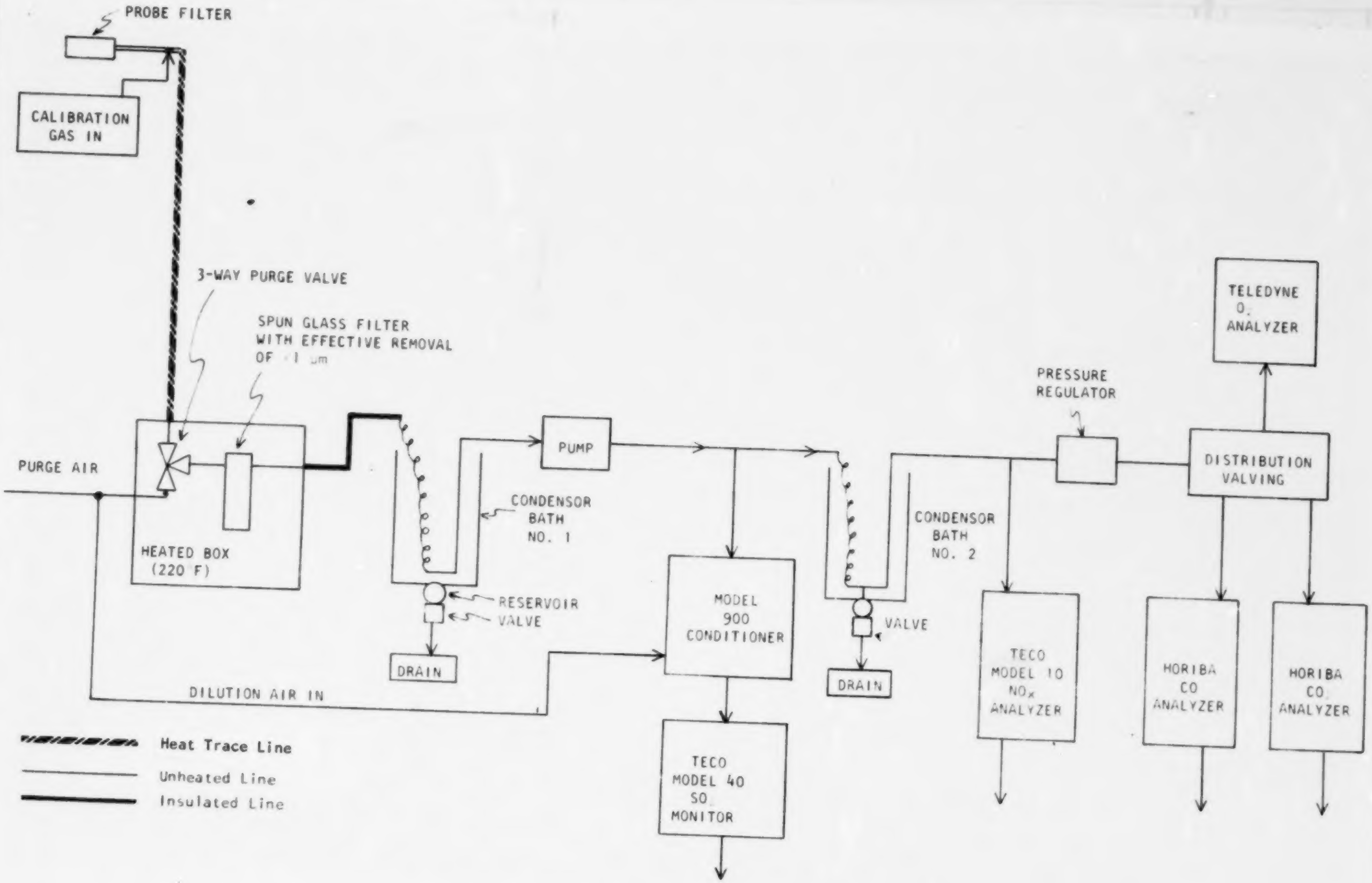
PROBE FILTER
CALIBRATION GAS IN
3-WAY PURGE VALVE
SPUN GLASS FILTER WITH EFFECTIVE REMOVAL OF <1 μm
PURGE AIR
HEATED BOX (220°F)
PUMP
CONDENSOR BATH NO. 1
RESERVOIR
VALVE
DRAIN
DILUTION AIR IN
MODEL 900 CONDITIONER
TECO MODEL 40 SO2 MONITOR
CONDENSOR BATH NO. 2
VALVE
DRAIN
TECO MODEL 10 NOx ANALYZER
PRESSURE REGULATOR
DISTRIBUTION VALVING
TELEDYNE O2 ANALYZER
HORIBA CO ANALYZER
HORIBA CO2 ANALYZER
Heat Trace Line
Unheated Line
Insulated Line

Figure 9. Option 1 - Modifications to existing equipment.

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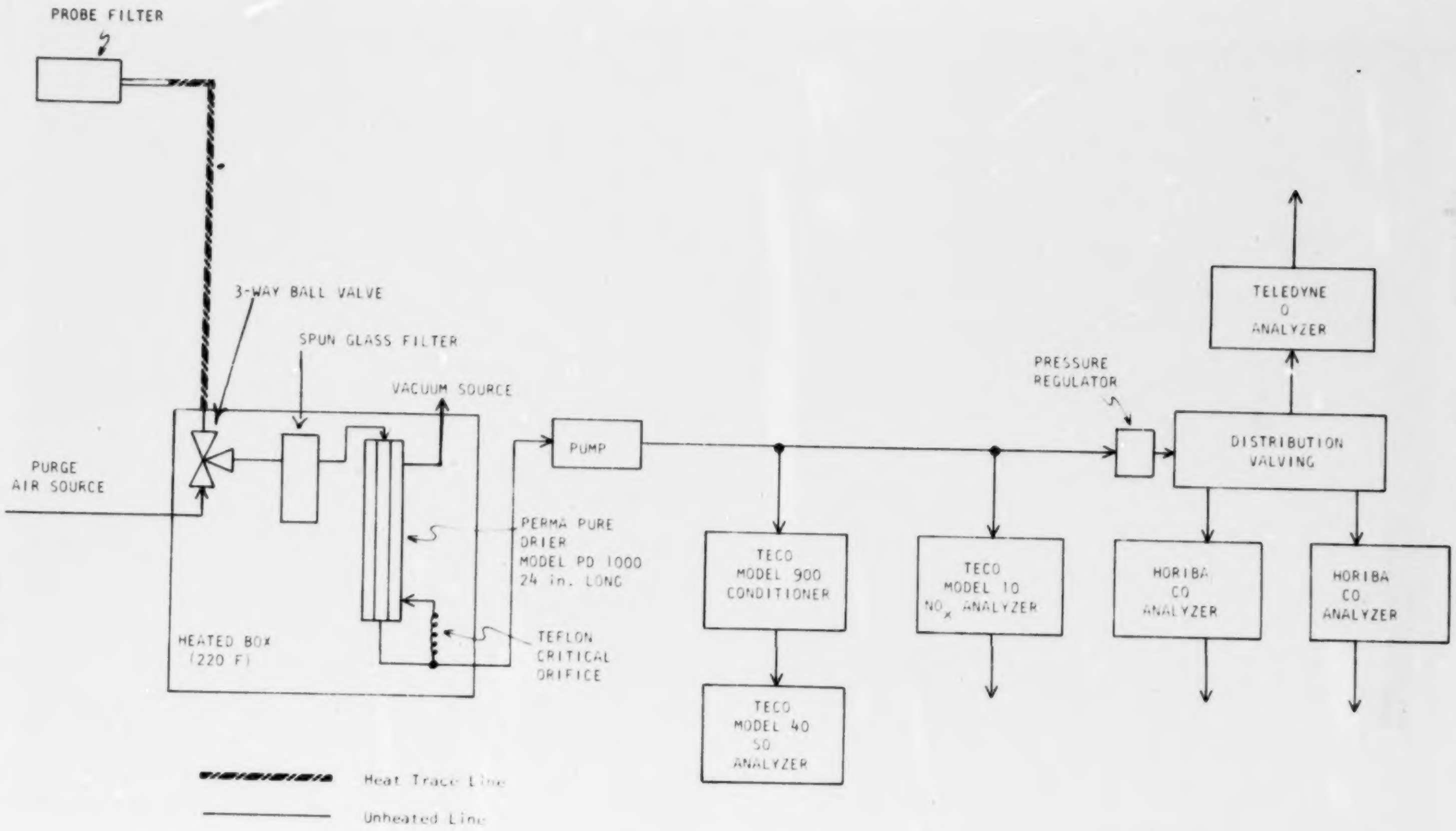
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3-WAY BALL VALVE
SPUN GLASS FILTER
VACUUM SOURCE
PURGE AIR SOURCE
PERMA PURE DRIER MODEL PD 1000 24 in. LONG
TEFLON CRITICAL ORIFICE
HEATED BOX (220 F)
PUMP
TECO MODEL 900 CONDITIONER
TECO MODEL 40 SO ANALYZER
TECO MODEL 10 NO$_x$ ANALYZER
PRESSURE REGULATOR
DISTRIBUTION VALVING
TELEDYNE O ANALYZER
HORIBA CO ANALYZER
HORIBA CO ANALYZER
Heat Trace Line
Unheated Line

Figure 10. Option 2 - Modifications to existing equipment.

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TABLE 12. RECOMMENDED CALIBRATION STANDARDS

Cylinder	Parameter(s)	Cylinder concentration	
Zero	SO_2, CO, CO_2, CO, O_2	N_2	
Mid span (1)	SO_2	500 ppm SO_2	N_2 diluent
	NO	500 ppm NO	
Mid span (2)	CO	500 ppm CO	N_2 diluent
	CO_2	10% CO_2	
	O_2	12% O_2	
High span (1)	SO_2	900 ppm SO_2	N_2 diluent
	NO	900 ppm NO	
High span (2)	CO	900 ppm CO	N_2 diluent
	CO_2	10% CO_2	
	O_2	21% O_2	

Compressed Air System

The current compressed air system should be modified to incorporate a degreasing and desiccant system. Heatless air dryers preceded by degreaser cartridges work well. The other alternative is to obtain a dual piston oil-less compressor (~\$200) with a heatless air dryer. Bendix instruments sells a heatless air dryer unit that is self-regenerating and supplies air up to pressures of 120 psig.

SECTION 7

RESULTS OF THE CONTINUOUS MONITORING PROGRAM

The Georgetown University fluidized bed boiler has been in operation burning coal since June, 1979. The system has logged several thousand hours of operation and has achieved continuous runs of 15 to 30 days. The FBB is the most prominent demonstration to date of fluidized bed technology in an industrial application.

The purpose of conducting the 30-day continuous monitoring program at Georgetown is to fill emission data gaps that exist for FBC technology in general, as envisioned for typical FBC operation in the commercial/industrial sector. With this in mind, several aspects of the GU FBB operation during our emission monitoring program were atypical of expected general FBC application. The following subsection discusses in detail those instances of atypical operation, summarizes their impact on pollutant emission rates, and provides perspective on the relationship between the FBB results and expectations for future routine application of FBC technology.

FBB PROCESS OPERATION DURING CEM PROGRAM

During the GCA CEM program at Georgetown, the FBB generally operated at half load (50,000 lb/hr steam) with both beds in operation. Certain design/operating factors of importance in attaining cost effective emission control were noted to be in abnormal ranges during part or all of our monitoring program. These factors are summarized below and the details of such operation are explained subsequently:

- High excess O_2 at stack
- High Ca/S molar feed ratios
- Inadequate flyash reinjection
- Torn baghouse filter bags and bag blinding

Flue Gas O_2

During the 30-day CEM program, flue gas O_2 varied from 7 to 12 percent (with a few excursions as high as 16 percent) as opposed to a design value of approximately 5 percent above the bed. In-bed O_2 monitors which are part of the automatic control system have not operated reliably at any time for more than a period of about 24 hours. Consequently, combustion air is manually controlled by the operator, the procedure being to feed at a conservative rate to avoid generating reducing zones within the bed and attendant watertube corrosion.

There are two other sources of air into the boiler which are difficult to vary in other than discrete increments; these include overfire air injected into Bed A (only two discrete volumetric rates are possible) and air injected through the eductors to recirculate fly ash to the bed.

At the low operating temperatures used in the FBB (815 to 871°C), it is postulated that practically all NO_x is fuel derived; i.e., by fixation of fuel nitrogen with oxygen in the combustion air. In the absence of excess O_2, or at lower design levels of 5 percent excess O_2, volatile fuel nitrogen components such as ammonia (NH_3) act as an intermediate in the chemical reduction of NO to molecular nitrogen (N_2).[8] Also, at low oxygen levels nitric oxide (NO) is chemically reduced to N_2 by carbon monoxide (CO).[9] At higher excess oxygen levels these chemical reduction reactions are suppressed and NO_x emissions increase. Analysis of the continuous monitoring data suggests that this phenomenon was occurring during the monitoring program at Georgetown.

Limestone Feed Rates

Two operating conditions were responsible for high limestone feed rates, thus, resulting in Ca/S ratios higher than traditional experience and higher than envisioned in typical future industrial applications. First, during most of GCA's monitoring program, operators were experiencing difficulty in maintaining suitable bed level in bed A. The standard mode of correcting the situation was to feed excessive amounts of limestone, at least for several hours each day, to equalize the bed levels in beds A and B. Following completion of the CEM program, the overfire air to bed A was shut off and the bed level maintenance problem subsequently ended. Apparently, the point at which overfire air is injected is only slightly above the expanded bed level. This may have caused uneven material distribution and significant particle elutriation and may have been the cause of continual drops in the level of bed A.

The second condition was the lack of a reliable in-bed SO_2 feedback signal for automatic control of the limestone feed rate. Without this signal, the operators were forced to feed limestone at a conservative rate to assure compliance with local SO_2 emission standards. An effort was made to respond to the continuous SO_2 signal from the stack; however, there were several periods of SO_2 monitor downtime for instrument calibrations conducted by GCA and routine maintenance procedures performed by the Georgetown University Physics Department.

During the latter half of the CEM program the reliability of the SO_2 monitor readout was in question due to the observation that oil from the air compressor (used for back flush and dilution air) had permeated the capillary restrictors in the monitor. The monitor was calibrated several times over 2 or 3 days and appeared to respond accurately. However, this downtime coupled with a lack of operator confidence in the SO_2 instrument readout provided an additional incentive to add limestone in conservative quantities to meet the local SO_2 standard.

Fly Ash Reinjection System

This system is designed to recirculate 100 percent of the particulate catch from the multicyclone collector to bed A. During the CEM program, Foster-Wheeler personnel indicated that the system was recirculating only a small fraction of the design rate, probably on the order of 10 percent. Consequently, overall multicyclone efficiency was reduced, since the collector was filled with solids elutriated from the boiler. Additionally, as of September 8, three of the five cinder trap reinjection pipes were clogged with solids.

This situation may have adversely affected emissions of the three pollutants of concern, SO_2, NO_x, and particulates. Efficient fly ash recirculation is an important factor in enhancing desulfurization by lengthening the residence time of sorbent and allowing for maximum sulfation of the lime. Also, the poor mixing and high elutriation apparently induced by the overfire air in bed A may have resulted in a significant amount of elutriation of fresh sorbent prior to any appreciable degree of sulfation.

Inefficient fly ash reinjection may have induced increased NO_x emission rates. One mechanism of NO_x reduction postulated for FBC is chemical reduction of NO to N_2 by recirculated char.[3] Without significant recirculation, this factor was eliminated.

Finally, fly ash loadings to the baghouse inlet (this parameter was not measured by EPA reference methods) were probably higher than design loadings due to inefficient primary particle collection as a result of multicyclone clogging. Although overall baghouse efficiency would not be expected to deteriorate, outlet loadings would be expected to be abnormally high as a result of higher inlet loadings.

Baghouse Operation

During the first few days of GCA's activities on site at Georgetown, there was noticeable puffing from the stack at regular intervals, indicating leakage in a compartment of the baghouse. To locate leaking bags, a hot slump procedure was undertaken on three different days: 8/19, 8/21, and 8/22; to gain access to the baghouse through the compartment lids. The FBB was shut down for short time periods (1/2 to 2 hours) in this fashion by shutting off the induced draft fan, shutting off coal and limestone feed, and shutting off the forced draft fan. During each of these three periods, several bags were replaced (approximately 5 to 10). The extent of puffing was subsequently reduced but not completely eliminated. Three EPA Method 5 particulate measurements were conducted on Saturday, August 23, as part of the performance specification tests. The resulting emission rates were 24.6, 37.8, and 47.0 ng/J (0.0572, 0.0879, and 0.1094 $lb/10^6$ Btu), or an average of 36.5 ng/J (0.0848 $lb/10^6$ Btu). (This performance is consistent with the optional intermediate particulate control level (see Table 14) of 43 ng/J (0.1 $lb/10^6$ Btu).)

The FBB was shut down over the Labor Day weekend to clear clogging of the bed B spent solids drain stand pipe, remove bed B refractory lining, and to reinspect the baghouse. Three days of downtime allowed for baghouse cooling so that operators could enter the baghouse and inspect bags and seals at the bottom of the unit. As a result of this inspection, some additional bags were replaced. Laboratory tests indicated that the Teflon bags in use (approximately 200 in all) were blinded, so that the remaining bags were operating at an abnormally high air-to-cloth ratio.

Overall baghouse performance improved after this inspection, as evidenced by the results of Method 5 testing conducted on September 13. The three measurement results were 19.6, 20.9, and 32.3 ng/J (0.0456, 0.0487, and 0.0751 lb/10^6 Btu), or an average of 24.3 ng/J (0.0565 lb/10^6 Btu).

In summary, the major design/operating factors noted to be atypical of expected conditions that may have adversely affected pollutant control performance include high excess O_2, high limestone feed rates, ineffective fly ash reinjection, and torn or blinded baghouse filters. Other factors that may have impacted pollutant control performance slightly include the relatively short term of operator experience with respect to controlling a novel technology, and medium load conditions which tend to shorten gas residence time in the bed in comparison to design and, consequently, elevate emissions of SO_2 and NO_x.

Consideration of these factors in combination suggests that the results should be used prudently in any generalized models for pollution control, economics, and energy impact associated with FBC technology. In addition, even if system operation were in complete accordance with design, caution would be required in applying the results on a general basis since the GU FBB is one specific design, not necessarily representative of future industrial applications as a whole.

SO_2 control performance was adversely affected as a result of bed height maintenance problems, lack of a reliable in-bed SO_2 feedback signal for automatic control of limestone feed, and ineffective fly ash reinjection. NO_x emissions were generally higher than envisioned for typical applications in the future due to high excess air operation, shorter than design gas residence time, and ineffective fly ash reinjection. Baghouse performance suffered due to torn bags, bag blinding and inefficient multiclone performance. Although uncertain, high baghouse inlet loadings may have been a causative factor in tearing bags and/or bag blinding.

EVALUATION OF CONTINUOUS MONITORING DATA

Introduction

Emissions and process data have been printed in terms of 15-minute, hourly, and daily average values and are reported in Appendix A. The daily average values are reproduced here in Table 13.

In ensuing discussion, FBB performance is compared to optional emission limitations, shown in Table 14, which were presented in the Technology Asessment Report for Industrial Boiler Applications: Fluidized Bed Combustion.[2] The levels were used as benchmarks to define FBC emission control capability, cost, energy, and environmental impact. It is expected that these levels cover

TABLE 13. GEORGETOWN UNIVERSITY FLUIDIZED-BED BOILER DAILY AVERAGE PROCESS AND EMISSION RATES

DAILY DATA CEM DATA			COAL								INLET	OUTLET							
DATE (YR/DAY)	TIME	TOT BLR LOAD (LB/HR)	COAL FEED (LB/HR)	SULFR (%)	HEAT VAL. (BTU/LB)	BED DEPTH (IN)	BED DEPTH (OF)	LIME FEED LB/HR)	SUP VELO (FT/SEC)	RES. TIME (SEC)	E SO2 NG/J	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX NG/J	E SO2 NG/J	EFF. (%)	CA/S
80 232	0 0	54136	5789	1.60	13356	19.7	1504	2237	4.6	0.35	1030	****	****	***	****	****	****	*****	7.3
80 233	0 0	53083	5677	1.60	13356	19.5	1495	2432	4.5	0.36	1030	92	351	488	12.2	349.	131.	87.2	8.1
80 234	0 0	52272	5590	1.60	13356	18.5	1484	2436	4.7	0.33	1030	103	345	464	12.1	363.	150.	85.4	8.3
80 235	0 0	51521	5510	1.60	13356	18.6	1474	2381	4.6	0.34	1030	129	312	541	12.4	337.	187.	81.8	8.1
80 236	0 0	51958	5566	1.60	13356	19.1	1477	1876	4.8	0.33	1030	135	297	559	12.1	313.	197.	80.9	6.4
80 237	0 0	50166	5365	1.60	13356	18.7	1474	1628	4.8	0.33	1030	184	275	500	11.8	282.	256.	75.1	5.8
80 238	0 0	52916	5659	1.60	13356	21.1	1483	1322	4.5	0.39	1030	198	301	476	9.2	237.	220.	78.7	4.4
80 239	0 0	55916	6083	1.46	13130	24.6	1443	1170	4.6	0.45	956	149	290	656	8.8	226.	170.	82.2	4.0
80 240	0 0	55272	6000	1.67	13160	21.7	1473	1036	4.6	0.39	1090	136	285	646	10.4	256.	171.	84.3	3.2
80 245	0 0	56863	6084	1.60	13356	18.9	1441	3517	5.0	0.32	1030	****	227	688	12.6	251.	****	*****	11.2
80 246	0 0	56875	6082	1.60	13356	19.3	1486	3120	4.9	0.33	1030	55	288	468	9.5	251.	62.	94.0	9.6
80 247	0 0	52000	5389	1.78	13782	19.1	1401	2632	4.8	0.33	1110	75	379	579	11.1	372.	168.	84.9	8.4
80 248	0 0	51666	5525	1.60	13356	19.0	1458	1972	4.8	0.33	1030	148	360	588	10.9	331.	102.	90.1	6.8
80 249	0 0	54416	5898	1.49	13181	18.9	1481	1920	4.8	0.33	971	47	351	615	11.2	342.	68.	93.0	6.7
80 252	0 0	52875	5654	1.60	13356	18.4	1470	1851	4.7	0.32	1030	33	353	614	12.3	441.	55.	94.7	6.2
80 253	0 0	56083	5997	1.60	13356	19.4	1483	2084	4.7	0.34	1030	34	358	679	10.7	323.	47.	95.4	6.6
80 254	0 0	58833	6292	1.60	13356	19.8	1522	2461	4.6	0.36	1030	75	338	663	10.0	288.	88.	91.4	7.4
80 255	0 0	60541	6571	1.71	13160	21.4	1503	2738	4.4	0.41	1120	70	317	828	8.9	250.	78.	93.1	7.4
80 256	0 0	62166	6749	1.90	13157	22.5	1508	2467	4.5	0.42	1239	42	340	776	8.8	262.	43.	96.5	5.9
80 257	0 0	54478	5843	1.91	13311	20.7	1467	2100	4.3	0.40	1236	40	331	751	10.2	289.	49.	96.2	6.1
80 258	0 0	47666	5058	1.95	13460	19.1	1407	****	4.4	0.36	1245	132	276	771	11.4	267.	178.	85.7	****
80 259	0 0	55500	6087	2.18	13023	19.9	1480	****	4.6	0.36	1439	193	285	729	10.3	255.	242.	83.2	****
80 260	0 0	56875	6382	2.19	12728	22.5	1497	****	4.2	0.46	1477	196	265	576	8.8	218.	215.	85.4	****
80 261	0 0	55541	6156	2.52	12887	23.2	1480	****	3.5	0.56	1679	212	192	***	8.1	143.	224.	86.3	****
80 262	0 0	53583	6053	2.42	12643	21.9	1493	****	3.4	0.53	1645	106	116	***	9.8	97.	136.	91.7	****

the range of potential emission standards that could be established for FBC industrial boilers.

TABLE 14. OPTIONAL LEVELS OF EMISSION CONTROL CONSIDERED FOR COAL-FIRED FLUIDIZED BED INDUSTRIAL BOILERS[2]

Level of control	SO_2 % reduction	NO_x ng/J (lb/10^6 Btu)	Particulate ng/J (lb/10^6 Btu)
Stringent	90	215(0.5)	12.9(0.03)
Intermediate	85	258(0.6)	43(0.1)
Moderate	75	301(0.7)	107.5(0.25)

Evaluation of SO_2 Data

SO_2 removal efficiency was high, but limestone consumption was also high. On a daily basis, desulfurization efficiency was always greater than 75 percent, the optional moderate control level. Control of 85 percent or greater was demonstrated on 15 of 23 days, and control of 90 percent or greater was demonstrated on 10 days. On an hourly basis, SO_2 removal efficiency exceeded 85 percent two-thirds of the time, and 90 percent almost half the time. Outlet SO_2 emissions were low, averaging 141 ng/J (0.33 lb/10^6 Btu) for all hours of record.

As a result of feeding excessive amounts of limestone (for reasons noted earlier), abnormally high Ca/S molar feed ratios (5 to 10, and greater) were used in comparison to projected requirements in the range of 2 to 4.5 to provide desulfurization efficiency from 75 to 90 percent.[2] Although high SO_2 removal efficiency was attained, this mode of operation is not necessarily cost-effective, and is not representative of future operation at Georgetown or of general application of FBC technology.

To assess emission control performance as a function of boiler operating conditions, an effort was made to correlate SO_2 emission data and desulfurization efficiency with individual process operating parameters such as Ca/S molar feed ratio, gas phase residence time, bed temperature, and others. Time periods for which hourly coal data were available were highlighted.

Figure 11 illustrates SO_2 removal efficiency as a function of Ca/S molar feed ratio for hours of known coal sulfur concentration and heating value. These data points were selected for this presentation because they afforded the most valid estimates of desulfurization efficiency and Ca/S molar feed ratio. Efficiency was always greater than 75 percent for these hours of operation and was generally well above 90 percent with Ca/S ratios greater than 4.

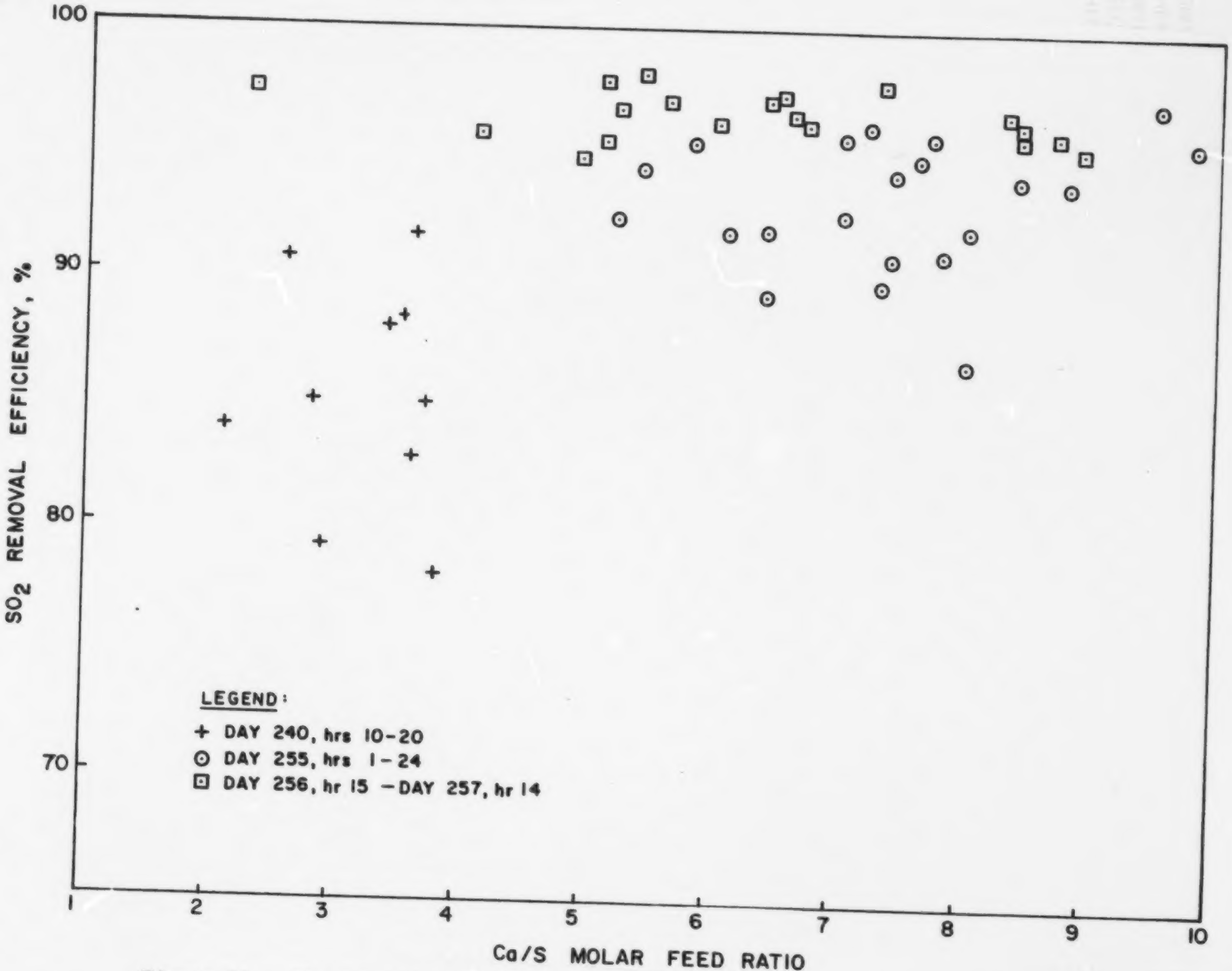

Figure 11. SO_2 removal efficiency as a function of Ca/S molar feed ratio for hours of measured coal sulfur content and heating value.

We used multiple regression analysis to investigate the influence of other process operating parameters on SO_2 emission rates and SO_2 removal efficiency. The relationship between outlet SO_2 emissions and process operating parameters was found to be linear; experimentation with nonlinear models showed no improvement over the linear regression results. Selection of the explanatory process variables was performed through the use of a backward elimination approach, in which all variables were entered into the equation as a first approximation and then nonsignificant variables were removed one by one. The equations were generated to help explain FBB operation, but are not intended to be used in general evaluations of FBC technology or other FBC test units.

Using this procedure the significant variables affecting SO_2 emission rates are the Ca/S ratio and gas phase residence time. Other variables, such as fly ash reinjection, have a slight effect but do not add to the explanatory capability of the resulting regression equation, which is:

$$E_{SO_2} = \underset{(61.8)}{\frac{318.4}{R}} - \underset{(11.8)}{168.9T} + 86.4 \qquad (1)$$

where E_{SO_2} = SO_2 emission rate, ng/J

R = Ca/S molar feed ratio

T = Gas phase residence time, seconds

The coefficient of determination (r^2) for this equation is 0.44; standard errors for the coefficients are presented in parentheses below the equation. The standard error of the estimate for the equation is 41.5 ng/J. Therefore, at average conditions the 95 percent confidence level for SO_2 emissions is ±81.3 ng/J. This confidence interval would increase for values of R and T different from the averages of 6 and 0.38, respectively.

A nonlinear logit model provided the best results for the SO_2 removal efficiency equation. The logit model required transformation of variables to logarithmic form; a backward elimination process was similarly applied to this equation to eliminate nonsignificant variables. The logit model equation was transformed from log-linear form back to the expression:

$$\eta_{SO_2} = \frac{100}{1 + 0.069\underset{(0.22)}{R^{-0.65}}\ \underset{(0.62)}{T^{-1.13}}} \qquad (2)$$

where η_{SO_2} = SO_2 removal efficiency in percent.

The coefficient of determination (r^2) for the logit form was 0.28; the standard errors of the exponents for the expression are presented in parentheses. The 95 percent confidence interval for η_{SO_2} at average values of R (6) and T (0.38) during the period of observation is -3.7 percent to +1.2 percent. This range will increase at other than average values of R and T. The confidence interval is asymmetrical due to the log transformation of the logit form.

At the noted average gas residence time of 0.38 seconds, the equation indicates that a Ca/S ratio of 3 is required to achieve 90 percent removal efficiency, the optional stringent control level. However, this projection is tenuous since a Ca/S ratio of 3 is well below the average for this data set.

To help evaluate the probability that the stringent SO_2 control level of 90 percent can be met by the FBB using a Ca/S ratio of 3, we reviewed experimental results from previous FBC emission testing. This performance has been achieved in certain past test runs by Babcock and Wilcox, the National Coal Board, Argonne National Laboratory, and Fluidyne.[2] Typically, however, 85 percent control was the more probable result at a Ca/S ratio of 3. This is true of the latest results we had available from Babcock and Wilcox (Test Series 8, Spring - 1979).[10] Although greater than 90 percent desulfurization was achieved on occasion, 85 percent control was more common when operating at Ca/S ratios close to 3.

Recent tests conducted by Combustion Engineering on their subscale unit (SSU) in April and May 1979 (M and N series)[11] were screened by GCA to determine SO_2 control performance at operating conditions similar to the Georgetown FBB. In 13 experimental runs where the gas phase residence time varied from 0.25 to 0.45 seconds and bed temperature varied from 1500°-1600°F, SO_2 removal efficiency varied from 88 to 99 percent at an average Ca/S ratio of 3.2.

Considering our statistical analysis and review of results from other experimentation, 90 percent SO_2 control efficiency at a Ca/S ratio of 3 would be most judiciously classified as the best FBB performance which could be expected on a long-term basis. It is more probable that the intermediate SO_2 control level of 85 percent could be consistently supported at a Ca/S ratio of 3.

Evaluation of NO_x Emission Data

NO_x emission rates were higher than expected primarily because of high excess oxygen. Ineffective fly ash reinjection may have also decreased NO_x emission control performance. The daily average NO_x emission rate was higher than the optional moderate level of 301 ng/J (0.7 $lb/10^6$ Btu) on 9 out of 24 days of record (conversely, the moderate level was met on 15 of 24 days). More stringent NO_x control was achieved on occasion, generally when flue gas oxygen concentrations were between 8 to 10 percent. During 10 days of operation, the optional intermediate level of 258 ng/J (0.6 $lb/10^6$ Btu) was supported, and on 2 days of operation the optional stringent level of 215 ng/J (0.5 $lb/10^6$ Btu) was supported.

The relationship between NO_x emission rate and flue gas O_2 concentration was investigated as an aid in judging whether operation at lower flue gas O_2 levels would result in substantially better NO_x emission control performance. The data indicate a strong correlation between the two parameters: NO_x emissions increase or decrease as a direct function of O_2 concentration.

Figures 12, 13, and 14 illustrate hourly NO_x and O_2 concentrations recorded during 6 separate days of boiler operation spanning the duration of the continuous monitoring program. The results are typical of all days of monitoring illustrating the consistent rise and fall of NO_x emissions directly with O_2 concentration.

Figure 15 illustrates the variation in NO_x emissions as a function of flue gas O_2 concentration on an hourly average basis. Examination of over 400 hours of record indicates that the moderate NO_x level of 301 ng/J (0.7 lb/10^6 Btu) was supported only about 65 percent of the time. Hourly average emissions less than the stringent NO_x level of 215 ng/J (0.5 lb/10^6 Btu) were recorded for 47 hours when the flue gas O_2 concentration varied between 7 to 11 percent, although NO_x emissions were normally higher than the stringent level when flue gas O_2 was higher than 8 percent. In fact, between 8 and 9 percent O_2, NOx emissions ranged as high as 295 ng/J (0.69 lb/10^6 Btu) and were typically about 250 ng/J (0.58 lb/10^6 Btu), or slightly below the optional intermediate control level of 258 ng/J (0.6 lb/10^6 Btu).

It should be pointed out that the O_2 levels observed represent an amount of excess air significantly above what is considered good practice for efficient operation of industrial boilers and well above the range used in past FBC experimentation. It is felt that as some of the problems with in-bed O_2 monitoring and fly ash reinjection are resolved, the Georgetown FBB will be operated at excess air levels closer to design, and the NO_x emission rate should drop to a level that is generally considered more representative of FBC.

Although flue gas O_2 correlated strongly with NO_x emissions, it is apparent from the variation in the data on Figure 15 that other variables were also affecting NO_x emissions. To examine the influence of other process variables, a multiple linear regression analysis was conducted. The computation procedure used to investigate NOx emission/process relationships is as explained for the analysis of SO_2 emission control performance. The regression analysis indicated that other than flue gas O_2, the gas phase residence was the next most important factor affecting NO_x emissions. Use of the fly ash reinjection system seemed to have a slight effect but was not of enough significance to be included in the resulting explanatory equation, which is:

$$E_{NO_x} = \underset{(1.7)}{28.3}\,(O_2) - \underset{(27)}{172}\,T + 52.9 \qquad (3)$$

where E_{NO_x} = NO_x emission rate, ng/J

O_2 = Flue gas O_2 concentration, percent

T = Gas phase residence time, seconds

The coefficient of determination (r^2) for Equation (3) is 0.63. The standard errors of the regression coefficients are presented below the equation in parentheses. The standard error of the estimate for this equation

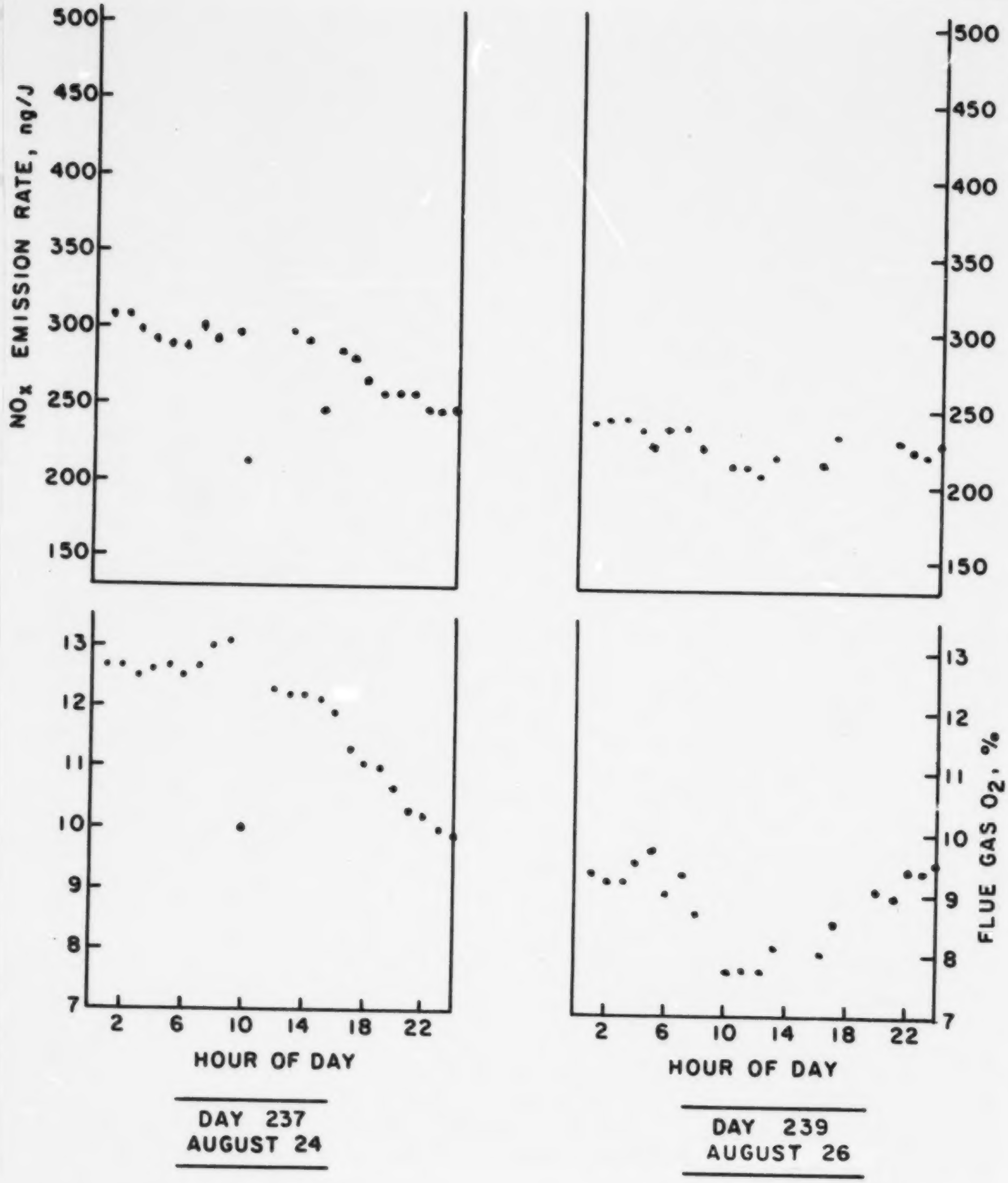

Figure 12. Simultaneous hourly NO_x and O_2 flue gas concentration - days 237 and 239.

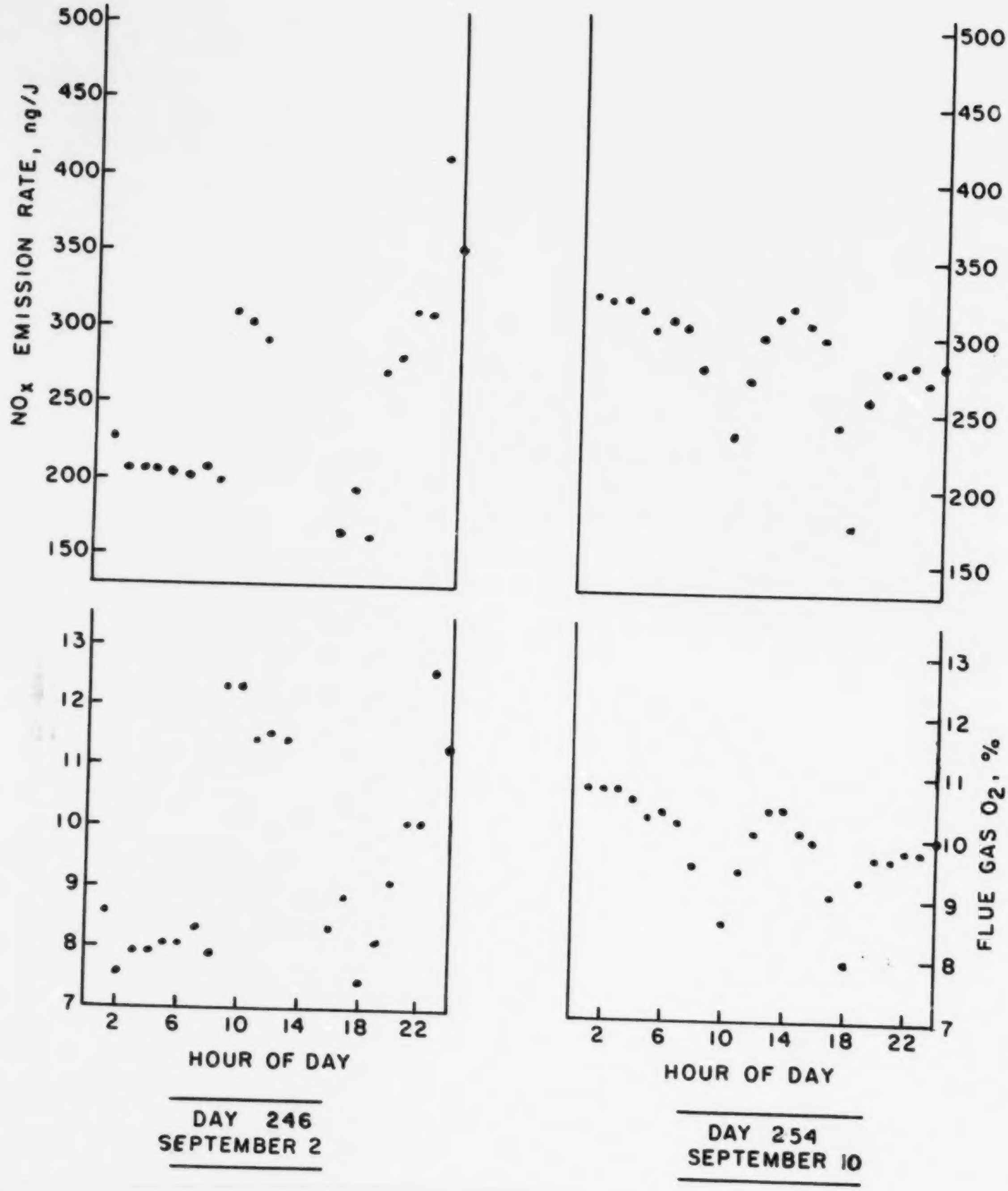

Figure 13. Simultaneous hourly NO_x and O_2 flue gas concentration - days 246 and 254.

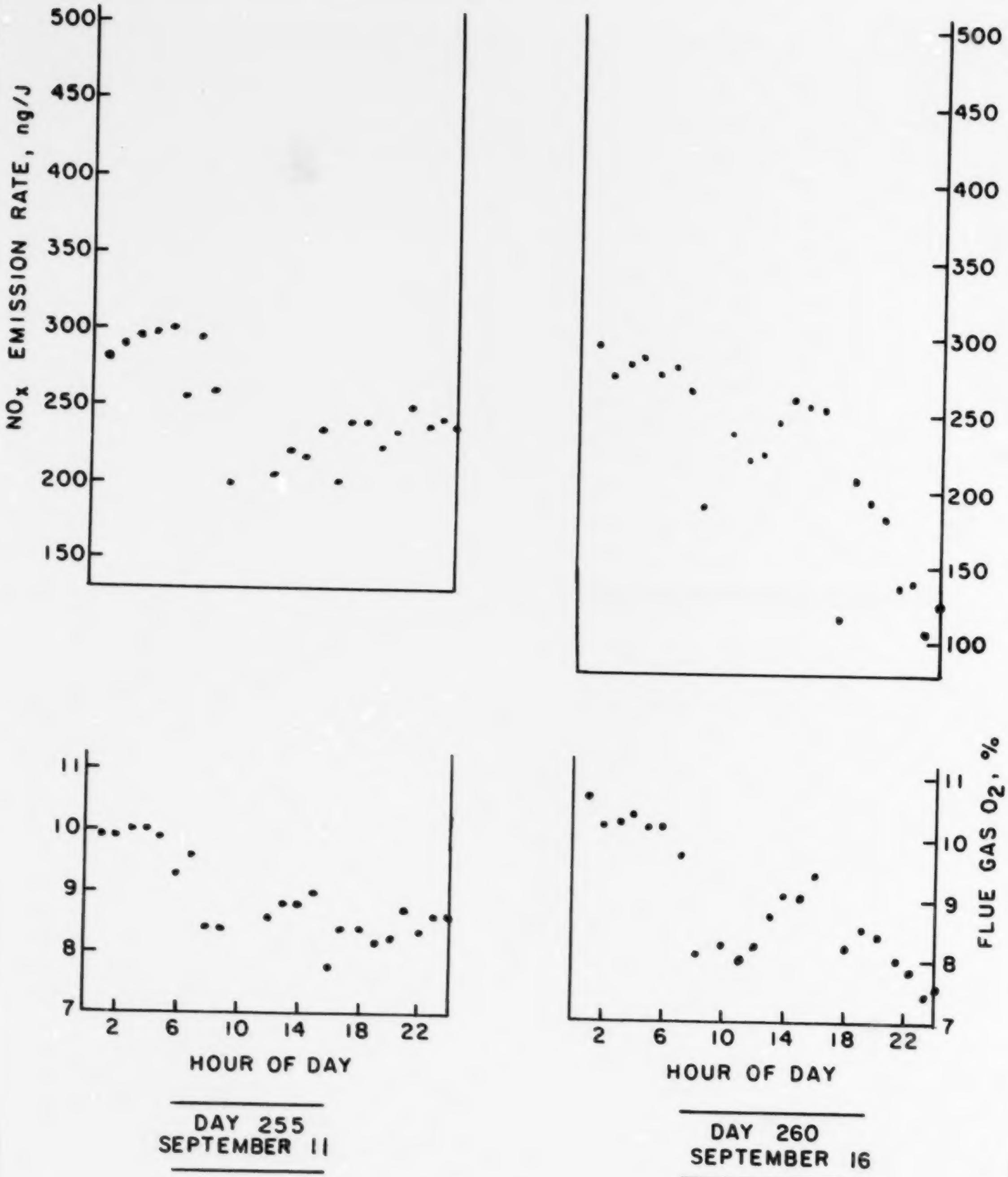

Figure 14. Simultaneous hourly NO_x and O_2 flue gas concentration - days 255 and 260.

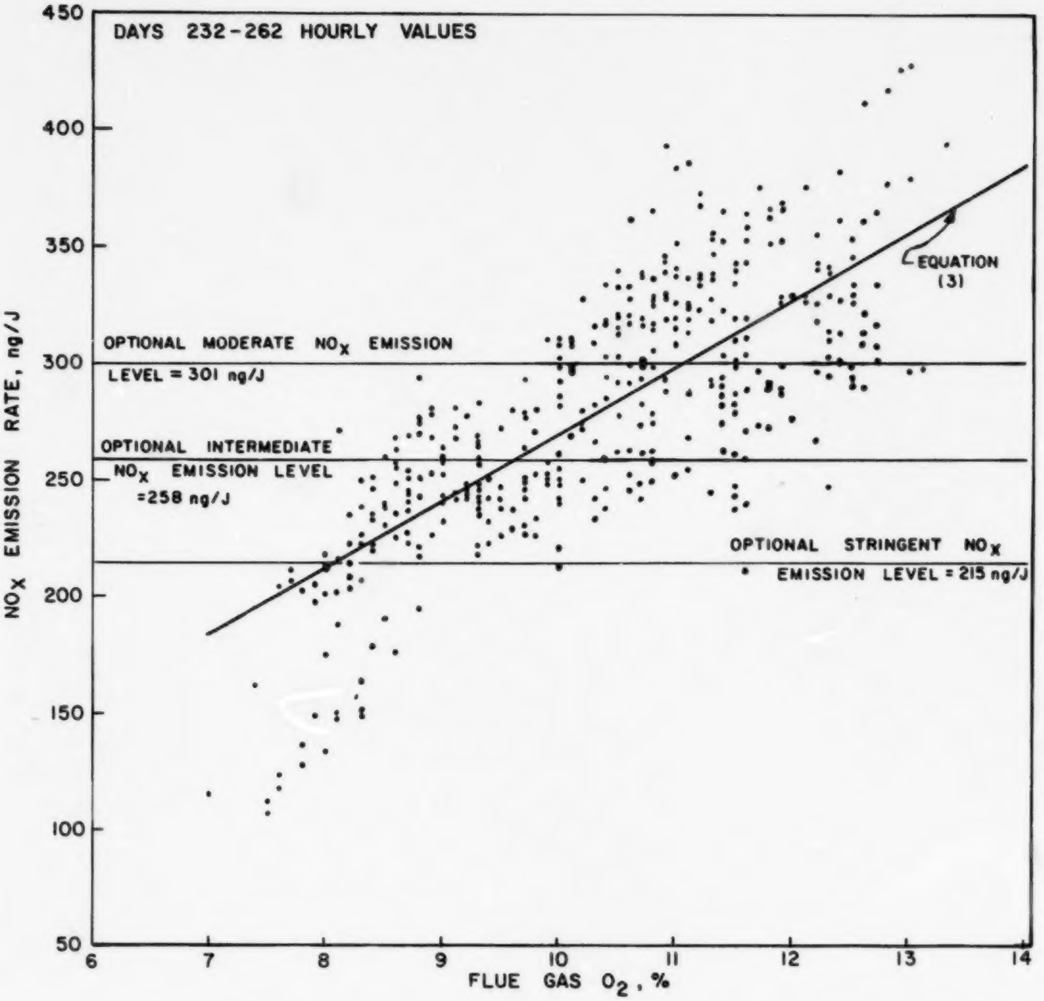

Figure 15. Hourly average NO_x emission rate as a function of flue gas O_2 concentration.

is 33.4 ng/J which indicates that the 95 percent confidence interval for the regression line at average conditions observed during the monitoring program is ±65.5 ng/J. As actual conditions (specifically O_2 levels) varied from the average level observed, this range in NO_x emission rate would tend to increase.

The regression equation can be used to estimate NO_x levels using given conditions of O_2 concentration and gas residence time. The regression line superimposed in Figure 15 represents the relationship between NO_x and flue gas O_2 for an average gas residence time of 0.38 seconds. With the given average gas residence time, the regression equation indicates that the moderate NO_x control level can be met (on average) at an operating flue gas O_2 concentration of 11 percent or less. Similarly, the intermediate level can be expected to be supported at a flue gas O_2 concentration of 9.6 percent or less, and the stringent NO_x emission rate of 215 ng/J, at a flue gas O_2 concentration of 8 percent or less. Examination of the FBB data (Figure 15) shows that for flue gas O_2 of 8 percent or less, 19 of 20 recorded hourly average NO_x values were below the stringent control level, suggesting that our estimate is conservative.

Comparison of FBB NO_x results with other experimentation is tenuous because O_2 levels reported for other testing are predominantly in the range of 1 to 5 percent.[2] In addition, matching of O_2 levels measured in pilot plant flues with measurements at the stack in the FBB are invalid because the FBB stack measurement is biased high due to baghouse in leakage. Because of these considerations, the comparison was not pursued.

It should be noted, however, that recent testing at B&W[10] and the Combustion Engineering SSU[11] at flue gas O_2 levels between 3 to 5 percent have consistently shown NO_x emissions well below the stringent NO_x level of 215 ng/J (0.5 lb/10^6 Btu). In fact, NOx emission rates reported for these facilities are normally about 129 ng/J (0.3 lb/10^6 Btu).

Other Operating Factors Influencing NO_x Emission Rates

Two other factors which conceivably influence NO_x emissions in fluidized-bed combustion are the carbon monoxide (CO) emission rate and coal nitrogen. In the presence of CO, NOx tends to be chemically reduced to molecular nitrogen, based on past experimentation.[9] However, based on our regression analysis, there was no observable correlation between outlet NO_x emissions and flue gas CO concentration. The influence of coal nitrogen could not be assessed because of insufficient data. Only three ultimate analyses were performed for daily composite coal samples, and the range in nitrogen content was from 1.44 to 1.51 percent. Therefore, no correlation was evident.

Evaluation of Particulate Emission Data

Two sets of particulate emission measurements consisting of three replicates each were conducted on August 23 and September 13 using EPA reference Methods 1 through 5. (See discussion of sampling techniques in Section 4). The results of these tests are presented in Table 15.

TABLE 15. RESULTS OF PARTICULATE EMISSION TESTING-EPA REFERENCE METHODS 1 THROUGH 5

Run number	August 23			September 13		
	P-1	P-2	P-3	P-4	P-5	P-6
Boiler load (lb/hr)	53,600	52,000	51,000	54,000	47,000	50,000
CO_2, %	8.0	8.0	8.0	8.9	8.0	8.0
O_2, %	11.5	11.5	11.5	10.1	10.6	10.6
Excess air, %	117.9	117.9	117.9	89.5	97.3	97.3
Avg. stack temp., °F	337.2	337.1	336.2	347.8	349.4	348.8
Stack gas volume, dscfm	18,890	19,245	18,296	17,607	18,121	18,177
Isokinetic ratio, %	96.74	95.87	98.58	98.56	98.40	98.36
Total particulate						
ng/J	47.04	37.79	24.58	32.31	20.92	19.62
lb/10^6 Btu	0.1094	0.0879	0.0572	0.0751	0.0487	0.0456
Average ng/J*		36.5			24.3	
lb/10^6 Btu		0.0848			0.0565	

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*The optional intermediate particulate control emission rate is 43 ng/J (0.1 lb/10^6 Btu).

As discussed in the first subsection "FBB Process Operation During CEM Program," two or three boiler/baghouse operating conditions may have increased particulate emission rates to higher than expected rates, as measured on August 23. Factors which may have increased baghouse inlet loadings include inefficient multicyclone performance due to clogging and excessive bed elutriation induced by injection of overfire air near the top of bed A. Baghouse efficiency may have been lower than design (inlet concentrations were not measured using EPA reference method procedures) due to bag punctures and apparent blinding of the Teflon bags interspersed throughout several baghouse compartments.

Prior to measurements made on September 13, several damaged bags were replaced and baghouse performance improved. The average emission rate measured was 24.3 ng/J (0.0565 $lb/10^6$ Btu), 33 percent below the particulate loading measured on August 23.

SUMMARY

Throughout the continuous monitoring program at Georgetown, certain important boiler operating parameters were in ranges atypical of design conditions. As a result, emission control performance (including emission rates and cost effectiveness) is not representative of general application of FBC technology in the industrial sector. The critical operating factors include high flue gas O_2, high limestone feed rates, ineffective fly ash reinjection, and torn or blinding bags in the baghouse.

Georgetown University is currently correcting all of these problems. Our analysis of the data suggests that these modifications will result in emission control performance more in keeping with the optional intermediate and stringent levels discussed here.

Application of the results reported here in generalized performance models should be performed with discretion recognizing problems routinely encountered in operating a novel technology. The results are site specific and cannot be validly applied to FBC technology in general.

SECTION 8

REFERENCES

1. Devitt, T., et al. Population and Characteristics of Industrial/Commercial Boilers in the U.S. Prepared for the U.S. Environmental Protection Agency by PEDCo Environmental, Inc. EPA-600/7-79-178a. August 1979.

2. Young, C. W., J. R. Robinson, C. B. Thunem, and P. F. Fennelly. Technology Assessment Report for Industrial Boiler Applications: Fluidized-Bed Combustion. Prepared by GCA Corporation, GCA/Technology Division for the U.S. Environmental Protection Agency. EPA-600/7-79-178e. November 1979.

3. Beér, J. M., et al. NO Reduction by Char in Fluidized Combustion. Massachusetts Institute of Technology, Department of Chemical Engineering and Energy Laboratory, Cambridge, Massachusetts. Undated.

4. Georgetown University. Industrial Application of Fluidized Bed Combustion. Quarterly Technical Progress Report for the Period July-September 1981. Prepared for the U.S. Department of Energy. Contract No. DE-AC21-76ET10381.

5. Gamble, R. L., W. J. McCloy. Update of Georgetown Experience - Fluidized Bed Combustion. Prepared by Foster-Wheeler Energy Corporation for Presentation at the American Power Conference. Chicago, Illinois. April 1980.

6. U.S. Environmental Protection Agency. Continuous Air Pollution Source Monitoring Systems Handbook. EPA-625/6-79-005. Technology Transfer, Cincinnati, Ohio. June 1979.

7. U.S. Environmental Protection Agency, Federal Register, Vol. 44, No. 197, pp. 58602-58636, Wednesday, October 10, 1979.

8. Peduto, E. F. Evaluation of Continuous Emission Monitoring System in Use at the Georgetown University Fluidized-Bed Boiler. Topical Report Prepared for the U.S. Environmental Protection Agency by GCA Corporation, GCA/Technology Division. GCA-TR-80-106-G. November 10, 1980.

9. Skopp, A. Studies of the Fluidized Lime-Bed Coal Combustion Desulfurization System. Final Report. Prepared by ESSO Research and Engineering for the U.S. Environmental Protection Agency. January 1 to December 31, 1971. (PB 210-246).

10. The Babcock & Wilcox Company. Fluidized Bed Combustion Development Facility and Commercial Utility AFBC Design Assessment. Quarterly Technical Progress Report No. 9. April through June 1979. Prepared for the Electric Power Research Institute. Contract No. RP-718-2. July 13, 1979.

11. Combustion Engineering. Industrial Application of Fluidized Bed Combustion, Phases 1 and 11. Quarterly Technical Progress Report. April through June 1979. Prepared for the U.S. Department of Energy. Contract No. EX-76-C-01-2473. FE 2473-33.

APPENDIX A

GEORGETOWN UNIVERSITY FLUIDIZED-BED BOILER PROCESS AND EMISSION DATA

TABLE A-1. GEORGETOWN UNIVERSITY FBB 15-MINUTE AVERAGE PROCESS AND EMISSION DATA

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
232	0	58000	6204	1.60	13356	21.5	1500	2470	4.8	0.37	1030	.	.	.	.	.	.	.	7.5
232	15	58000	6204	1.60	13356	21.5	1500	2410	4.8	0.37	1030	.	.	.	.	.	.	.	7.4
232	30	58000	6204	1.60	13356	21.5	1500	2430	4.8	0.37	1030	.	.	.	.	.	.	.	7.4
232	45	58000	6204	1.60	13356	21.5	1500	2620	4.9	0.37	1030	.	.	.	.	.	.	.	9.0
232	100	56000	5990	1.60	13356	21.5	1545	2620	4.9	0.37	1030	.	.	.	.	.	.	.	8.3
232	115	56000	5990	1.60	13356	21.5	1545	2260	4.8	0.37	1030	.	.	.	.	.	.	.	7.2
232	130	56000	5990	1.60	13356	21.5	1545	2270	4.3	0.37	1030	.	.	.	.	.	.	.	7.2
232	145	56000	5990	1.60	13356	21.5	1545	2390	4.9	0.37	1030	.	.	.	.	.	.	.	7.6
232	200	56000	5990	1.60	13356	21.5	1525	2240	4.8	0.37	1030	.	.	.	.	.	.	.	7.1
232	215	56000	5990	1.60	13356	21.5	1525	2180	4.9	0.37	1030	.	.	.	.	.	.	.	6.9
232	230	56000	5990	1.60	13356	21.5	1525	2220	4.8	0.37	1030	.	.	.	.	.	.	.	7.0
232	245	56000	5990	1.60	13356	21.5	1525	2160	4.9	0.37	1030	.	.	.	.	.	.	.	5.1
232	300	56000	5990	1.60	13356	20.5	1535	2240	4.5	0.37	1030	.	.	.	.	.	.	.	7.1
232	315	56000	5990	1.60	13356	20.5	1535	2120	4.5	0.37	1030	.	.	.	.	.	.	.	5.7
232	330	56000	5990	1.60	13356	20.5	1535	2000	4.6	0.37	1030	.	.	.	.	.	.	.	5.3
232	345	56000	5990	1.60	13356	20.5	1535	2050	4.6	0.37	1030	.	.	.	.	.	.	.	5.5
232	400	55000	5883	1.60	13356	21.0	1520	2110	4.8	0.36	1030	.	.	.	.	.	.	.	6.8
232	415	55000	5883	1.60	13356	21.0	1520	2150	4.9	0.36	1030	.	.	.	.	.	.	.	5.9
232	430	55000	5883	1.60	13356	21.0	1520	2190	4.8	0.36	1030	.	.	.	.	.	.	.	7.1
232	445	55000	5883	1.60	13356	21.0	1520	2370	4.3	0.36	1030	.	.	.	.	.	.	.	7.6
232	500	55000	5883	1.60	13356	21.0	1510	2470	4.9	0.35	1030	.	.	.	.	.	.	.	8.0
232	515	55000	5883	1.60	13356	21.0	1510	2310	4.8	0.35	1030	.	.	.	.	.	.	.	7.4
232	530	55000	5883	1.60	13356	21.0	1510	2180	4.8	0.35	1030	.	.	.	.	.	.	.	7.0
232	545	55000	5883	1.60	13356	21.0	1510	2240	4.8	0.36	1030	.	.	.	.	.	.	.	7.2
232	600	56000	5990	1.60	13356	19.5	1525	2300	4.7	0.35	1030	.	.	.	.	.	.	.	7.3
232	615	56000	5990	1.60	13356	19.5	1525	2240	4.7	0.35	1030	.	.	.	.	.	.	.	7.1
232	630	56000	5990	1.60	13356	19.5	1525	2530	4.7	0.35	1030	.	.	.	.	.	.	.	8.0
232	645	56000	5990	1.60	13356	19.5	1525	2730	4.7	0.35	1030	.	.	.	.	.	.	.	9.6
232	700	54000	5775	1.60	13356	19.5	1488	2830	4.9	0.33	1030	.	.	.	.	.	.	.	9.3
232	715	54000	5776	1.60	13356	19.5	1488	2850	4.9	0.33	1030	.	.	.	.	.	.	.	9.4
232	730	54000	5775	1.60	13356	19.5	1488	2610	4.9	0.33	1030	.	.	.	.	.	.	.	8.6
232	745	54000	5775	1.60	13356	19.5	1488	2500	4.9	0.33	1030	.	.	.	.	.	.	.	8.2
232	800	54000	5775	1.60	13356	19.5	1503	2360	4.8	0.34	1030	.	.	.	.	.	.	.	7.7
232	815	54000	5776	1.60	13356	19.5	1503	2400	4.8	0.34	1030	.	.	.	.	.	.	.	7.9
232	830	54000	5775	1.60	13356	19.5	1503	2520	4.9	0.34	1030	.	.	.	.	.	.	.	8.3
232	845	54000	5775	1.60	13356	19.5	1503	2670	4.3	0.34	1030	.	.	.	.	.	.	.	8.8
232	900	54000	5775	1.60	13356	19.0	1475	2370	4.7	0.34	1030	.	.	.	.	.	.	.	7.8
232	915	54000	5775	1.60	13356	19.0	1475	2140	4.7	0.34	1030	.	.	.	.	.	.	.	7.0
232	930	54000	5776	1.60	13356	19.0	1475	2190	4.7	0.34	1030	.	.	.	.	.	.	.	7.2
232	945	54000	5775	1.60	13356	19.0	1475	2210	4.7	0.34	1030	.	.	.	.	.	.	.	7.3

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
232	1000	55000	5983	1.60	13356	18.5	1508	2230	4.8	0.32	1030	.	.	.	.	.	.	.	7.2
232	1015	55000	5983	1.60	13356	18.5	1508	1990	4.8	0.32	1030	.	.	.	.	.	.	.	6.4
232	1030	55000	5983	1.60	13356	18.5	1508	1910	4.8	0.32	1030	.	.	.	.	.	.	.	5.2
232	1045	55000	5983	1.60	13356	18.5	1508	2030	4.8	0.32	1030	.	.	.	.	.	.	.	6.5
232	1100	54000	5776	1.60	13356	18.5	1545	2050	4.9	0.32	1030	.	.	.	.	.	.	.	6.8
232	1115	54000	5776	1.60	13356	18.5	1545	1990	4.9	0.32	1030	.	.	.	.	.	.	.	6.5
232	1130	54000	5776	1.60	13356	18.5	1545	1860	4.8	0.32	1030	.	.	.	.	.	.	.	6.1
232	1145	54000	5776	1.60	13356	18.5	1545	1890	4.8	0.32	1030	.	.	.	.	.	.	.	6.2
232	1200	52000	5562	1.60	13356	18.2	1500	.	4.9	0.31	1030	.	.	.	.	.	.	.	.
232	1215	52000	5562	1.60	13356	18.2	1500	2040	4.9	0.31	1030	.	.	.	.	.	.	.	7.0
232	1230	52000	5562	1.60	13356	18.2	1500	2110	4.9	0.31	1030	.	.	.	.	.	.	.	7.2
232	1245	52000	5562	1.60	13356	18.2	1500	2190	4.9	0.31	1030	.	.	.	.	.	.	.	7.3
232	1300	50000	5348	1.60	13356	18.5	1465	2450	4.9	0.32	1030	.	.	.	.	.	.	.	8.7
232	1315	50000	5348	1.60	13356	18.5	1465	2370	4.9	0.32	1030	.	.	.	.	.	.	.	8.4
232	1330	50000	5348	1.60	13356	18.5	1465	2190	4.9	0.32	1030	.	.	.	.	.	.	.	7.8
232	1345	50000	5348	1.60	13356	18.5	1465	2160	4.8	0.32	1030	.	.	.	.	.	.	.	7.7
232	1400	52000	5562	1.60	13356	18.5	1490	1950	4.5	0.33	1030	.	.	.	.	.	.	.	5.6
232	1415	52000	5562	1.60	13356	18.5	1490	1900	4.5	0.33	1030	.	.	.	.	.	.	.	6.5
232	1430	52000	5562	1.60	13356	18.5	1490	2040	4.5	0.33	1030	.	.	.	.	.	.	.	7.0
232	1445	52000	5562	1.60	13356	18.5	1490	1970	4.6	0.33	1030	.	.	.	.	.	.	.	5.7
232	1500	50000	5348	1.60	13356	18.5	1430	2020	4.5	0.34	1030	.	.	.	.	.	.	.	7.2
232	1515	50000	5348	1.60	13356	18.5	1430	2120	4.5	0.34	1030	.	.	.	.	.	.	.	7.5
232	1530	50000	5348	1.60	13356	18.5	1430	2010	4.6	0.34	1030	.	.	.	.	.	.	.	7.1
232	1545	50000	5348	1.60	13356	18.5	1430	1920	4.6	0.34	1030	.	.	.	.	.	.	.	6.8
232	1600	50000	5348	1.60	13356	18.5	1423	1870	4.5	0.34	1030	.	.	.	.	.	.	.	6.5
232	1615	50000	5348	1.60	13356	18.5	1423	.	4.5	0.34	1030	.	.	.	.	.	.	.	.
232	1630	50000	5348	1.60	13356	18.5	1423	.	4.5	0.34	1030	.	.	.	.	.	.	.	.
232	1645	50000	5348	1.60	13356	18.5	1423	.	4.5	0.34	1030	.	.	.	.	.	.	.	.
232	1700	.	.	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
232	1715	.	.	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
232	1730	.	.	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
232	1745	.	.	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
232	1800	.	.	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
232	1815	.	.	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
232	1830	.	.	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
232	1845	.	.	1.60	13356	.	.	1890	.	.	1030	.	.	.	.	.	.	.	.
232	1900	55000	5390	1.60	13356	19.0	1525	2420	4.2	0.37	1030	.	.	.	.	.	.	.	7.7
232	1915	55000	5390	1.60	13356	19.0	1525	2210	4.2	0.37	1030	.	.	.	.	.	.	.	7.0
232	1930	56000	5390	1.60	13356	19.0	1525	2240	4.2	0.37	1030	.	.	.	.	.	.	.	7.1
232	1945	55000	5390	1.60	13356	19.0	1525	2200	4.2	0.37	1030	.	.	.	.	.	.	.	7.0

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
232	2000	54000	5776	1.60	13356	20.0	1500	2270	4.0	0.42	1030	.	.	.	.	.	.	.	7.4
232	2015	54000	5776	1.60	13356	20.0	1500	2330	4.0	0.42	1030	.	.	.	.	.	.	.	7.6
232	2030	54000	5776	1.60	13356	20.0	1500	.	4.0	0.42	1030	.	.	.	.	.	.	.	.
232	2045	54000	5776	1.60	13356	20.0	1500	.	4.0	0.42	1030	.	.	.	.	.	.	.	.
232	2100	52000	5562	1.60	13356	20.0	1510	2230	4.0	0.42	1030	.	.	.	.	.	.	.	7.6
232	2115	52000	5562	1.60	13356	20.0	1510	2120	4.0	0.42	1030	.	.	.	.	.	.	.	7.2
232	2130	52000	5562	1.60	13356	20.0	1510	2230	4.0	0.42	1030	.	.	.	.	.	.	.	7.6
232	2145	52000	5562	1.60	13356	20.0	1510	2160	4.0	0.42	1030	.	.	.	.	.	.	.	7.4
232	2200	56000	5990	1.60	13356	20.0	1540	2180	4.5	0.37	1030	.	.	.	.	.	.	.	6.9
232	2215	56000	5990	1.60	13356	20.0	1540	2110	4.5	0.37	1030	.	.	.	.	.	.	.	5.7
232	2230	56000	5990	1.60	13356	20.0	1540	2100	4.5	0.37	1030	.	.	.	.	.	.	.	6.6
232	2245	56000	5990	1.60	13356	20.0	1540	2160	4.5	0.37	1030	.	.	.	.	.	.	.	6.8
232	2300	56000	5990	1.60	13356	20.0	1530	2240	4.5	0.37	1030	.	.	.	.	.	.	.	7.1
232	2315	56000	5990	1.60	13356	20.0	1530	2230	4.5	0.37	1030	.	.	.	.	.	.	.	7.1
232	2330	56000	5990	1.60	13356	20.0	1530	2140	4.5	0.37	1030	.	.	.	.	.	.	.	5.9
232	2345	56000	5990	1.60	13356	20.0	1530	2140	4.5	0.37	1030	.	.	.	.	.	.	.	6.8

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
233	0	54000	5776	1.60	13356	21.0	1500	1950	4.5	0.39	1030	.	.	.	.	.	.	.	6.4
233	15	54000	5775	1.50	13356	21.0	1500	2200	4.5	0.39	1030	.	.	.	.	.	.	.	7.2
233	30	54000	5775	1.60	13356	21.0	1500	2350	4.5	0.39	1030	.	.	.	.	.	.	.	6.7
233	45	54000	5775	1.60	13356	21.0	1500	1850	4.5	0.39	1030	.	.	.	.	.	.	.	5.1
233	100	54000	5776	1.60	13356	21.0	1500	1940	4.6	0.38	1030	.	.	.	.	.	.	.	6.4
233	115	54000	5775	1.60	13356	21.0	1500	1970	4.6	0.38	1030	.	.	.	.	.	.	.	6.5
233	130	54000	5775	1.60	13356	21.0	1500	1910	4.6	0.38	1030	.	.	.	.	.	.	.	6.3
233	145	54000	5776	1.60	13356	21.0	1500	1840	4.6	0.38	1030	.	.	.	.	.	.	.	6.0
233	200	58000	6204	1.60	13356	22.0	1560	2020	4.5	0.39	1030	.	.	.	.	.	.	.	6.2
233	215	58000	6204	1.60	13356	22.0	1560	2090	4.6	0.39	1030	.	.	.	.	.	.	.	5.4
233	230	58000	6204	1.60	13356	22.0	1560	2150	4.6	0.39	1030	.	.	.	.	.	.	.	5.6
233	245	58000	6204	1.50	13356	22.0	1560	2210	4.6	0.39	1030	.	.	.	.	.	.	.	6.8
233	300	56000	5990	1.60	13356	22.5	1520	2610	4.5	0.42	1030	.	.	.	.	.	.	.	8.3
233	315	56000	5990	1.50	13356	22.5	1520	2770	4.5	0.42	1030	.	.	.	.	.	.	.	8.8
233	330	56000	5990	1.60	13356	22.5	1520	2650	4.5	0.42	1030	.	.	.	.	.	.	.	8.4
233	345	56000	5990	1.60	13356	22.5	1520	.	4.5	0.42	1030	.	.	.	.	.	.	.	.
233	400	54000	5776	1.60	13356	22.5	1470	.	4.3	0.43	1030	.	.	.	.	.	.	.	.
233	415	54000	5775	1.60	13356	22.5	1470	2410	4.3	0.43	1030	.	.	.	.	.	.	.	7.9
233	430	54000	5776	1.60	13356	22.5	1470	2380	4.3	0.43	1030	.	.	.	.	.	.	.	7.8
233	445	54000	5775	1.60	13356	22.5	1470	2440	4.3	0.43	1030	.	.	.	.	.	.	.	8.0
233	500	58000	6204	1.60	13356	22.0	1510	2540	4.5	0.41	1030	.	.	.	.	.	.	.	7.8
233	515	58000	6204	1.60	13356	22.0	1510	2310	4.5	0.41	1030	.	.	.	.	.	.	.	7.1
233	530	58000	6204	1.60	13356	22.0	1510	2260	4.5	0.41	1030	.	.	.	.	.	.	.	6.9
233	545	58000	6204	1.60	13356	22.0	1510	2230	4.5	0.41	1030	.	.	.	.	.	.	.	6.8
233	600	54000	5776	1.60	13356	21.0	1463	2360	4.9	0.36	1030	.	.	.	.	.	.	.	7.7
233	615	54000	5776	1.60	13356	21.0	1463	2480	4.9	0.36	1030	.	.	.	.	.	.	.	8.1
233	630	54000	5776	1.60	13356	21.0	1463	2550	4.9	0.36	1030	.	.	.	.	.	.	.	8.4
233	645	54000	5775	1.60	13356	21.0	1463	2320	4.9	0.35	1030	.	.	.	.	.	.	.	7.6
233	700	56000	5990	1.60	13356	22.5	1500	2010	4.4	0.42	1030	.	.	.	.	.	.	.	6.4
233	715	56000	5990	1.60	13356	22.5	1500	2000	4.4	0.42	1030	.	.	.	.	.	.	.	6.3
233	730	56000	5990	1.60	13356	22.5	1500	2050	4.4	0.42	1030	.	.	.	.	.	.	.	5.5
233	745	56000	5990	1.60	13356	22.5	1500	1960	4.4	0.42	1030	.	.	.	.	.	.	.	6.3
233	800	54000	5775	1.60	13356	21.5	1490	1880	4.5	0.40	1030	.	.	.	.	.	.	.	5.2
233	815	54000	5776	1.60	13356	21.5	1490	1950	4.5	0.40	1030	.	.	.	.	.	.	.	6.4
233	830	54000	5776	1.60	13356	21.5	1490	2000	4.5	0.40	1030	.	.	.	.	.	.	.	6.6
233	845	54000	5776	1.60	13356	21.5	1490	1910	4.5	0.40	1030	.	.	.	.	.	.	.	6.3
233	900	54000	5776	1.60	13356	21.0	1515	1890	4.5	0.39	1030	.	.	.	.	.	.	.	5.2
233	915	54000	5776	1.60	13356	21.0	1515	2010	4.5	0.39	1030	.	.	.	.	.	.	.	6.6
233	930	54000	5775	1.60	13356	21.0	1515	2160	4.5	0.39	1030	.	.	.	.	.	.	.	7.1
233	945	54000	5775	1.60	13356	21.0	1515	2100	4.5	0.39	1030	.	.	.	.	.	.	.	6.9

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
233	1000	52000	5562	1.60	13356	19.5	1500	1920	4.5	0.35	1030	.	.	.	.	.	.	.	5.3
233	1015	52000	5562	1.60	13356	19.5	1500	1900	4.5	0.36	1030	.	.	.	.	.	.	.	6.3
233	1030	52000	5562	1.60	13356	19.5	1500	1920	4.5	0.36	1030	.	.	.	.	.	.	.	5.5
233	1045	52000	5562	1.60	13356	19.5	1500	1940	4.5	0.35	1030	.	.	.	.	.	.	.	5.6
233	1100	52000	5562	1.60	13356	19.5	1500	2090	4.6	0.34	1030	.	.	.	.	.	.	.	7.1
233	1115	52000	5562	1.60	13356	19.5	1500	2150	4.6	0.34	1030	.	.	.	.	.	.	.	7.3
233	1130	52000	5562	1.60	13356	19.5	1500	1740	4.6	0.34	1030	.	.	.	.	.	.	.	5.5
233	1145	52000	5562	1.60	13356	19.5	1500	1990	4.6	0.34	1030	.	.	.	.	.	.	.	5.8
233	1200	50000	5348	1.60	13356	18.0	1525	2090	4.5	0.33	1030	.	.	.	.	.	.	.	7.4
233	1215	50000	5348	1.60	13356	18.0	1525	2080	4.5	0.33	1030	.	.	.	.	.	.	.	7.4
233	1230	50000	5348	1.60	13356	18.0	1525	1930	4.5	0.33	1030	.	.	389	13.1	.	.	.	6.8
233	1245	50000	5348	1.60	13356	18.0	1525	1950	4.5	0.33	1030	.	.	396	12.7	.	.	.	7.0
233	1300	50000	5348	1.60	13356	17.5	1463	1940	4.5	0.32	1030	.	.	398	13.6	.	.	.	5.9
233	1315	50000	5348	1.60	13356	17.5	1463	2000	4.5	0.32	1030	.	.	400	12.9	.	.	.	7.1
233	1330	50000	5348	1.60	13356	17.5	1463	1990	4.5	0.32	1030	.	.	431	12.9	.	.	.	7.1
233	1345	50000	5348	1.60	13356	17.5	1463	2000	4.5	0.32	1030	.	.	408	13.7	.	.	.	7.1
233	1400	52000	5562	1.60	13356	16.5	1535	1950	4.5	0.31	1030	.	.	.	.	.	.	.	5.6
233	1415	52000	5562	1.60	13356	16.5	1535	1980	4.5	0.31	1030	.	.	.	.	.	.	.	5.7
233	1430	52000	5562	1.60	13356	16.5	1535	1910	4.5	0.31	1030	.	.	.	.	.	.	.	5.5
233	1445	52000	5562	1.60	13356	16.5	1535	1910	4.5	0.31	1030	.	.	.	.	.	.	.	5.5
233	1500	52000	5562	1.60	13356	15.5	1490	.	4.7	0.29	1030	.	.	.	.	.	.	.	.
233	1515	52000	5562	1.60	13356	15.5	1490	.	4.7	0.29	1030	.	.	.	.	.	.	.	.
233	1530	52000	5562	1.60	13356	15.5	1490	.	4.7	0.29	1030	.	.	.	.	.	.	.	.
233	1545	52000	5562	1.60	13356	15.5	1490	.	4.7	0.29	1030	.	.	.	.	.	.	.	.
233	1600	50000	5348	1.60	13356	17.0	1485	.	4.4	0.32	1030	.	.	.	.	.	.	.	.
233	1615	50000	5348	1.60	13356	17.0	1485	.	4.4	0.32	1030	.	.	.	13.0	.	.	.	.
233	1630	50000	5348	1.60	13356	17.0	1485	.	4.4	0.32	1030	.	.	.	12.9	.	.	.	.
233	1645	50000	5348	1.60	13356	17.0	1485	.	4.4	0.32	1030	.	.	.	12.9	.	.	.	.
233	1700	50000	5348	1.60	13356	17.2	1450	.	4.5	0.32	1030	108	.	424	12.9	.	172	83.3	.
233	1715	50000	5348	1.60	13356	17.2	1450	3550	4.5	0.32	1030	80	.	424	12.7	.	124	88.0	13
233	1730	50000	5348	1.60	13356	17.2	1450	3720	4.5	0.32	1030	68	.	429	12.7	.	105	89.8	13
233	1745	50000	5348	1.60	13356	17.2	1450	2660	4.5	0.32	1030	66	.	465	12.4	.	99	90.4	9.4
233	1800	50000	5348	1.60	13356	17.0	1480	2200	4.6	0.30	1030	57	.	497	12.3	.	84	91.8	7.8
233	1815	50000	5348	1.60	13356	17.0	1483	2170	4.6	0.30	1030	66	.	503	12.3	.	98	90.5	7.7
233	1830	50000	5348	1.60	13356	17.0	1483	2530	4.6	0.30	1030	86	.	500	12.4	.	129	87.5	9.1
233	1845	50000	5348	1.60	13356	17.0	1483	3640	4.6	0.30	1030	102	.	509	12.2	.	149	85.5	13
233	1900	52000	5562	1.60	13356	17.2	1500	3590	4.5	0.32	1030	95	.	504	12.3	.	140	86.4	12
233	1915	52000	5562	1.60	13356	17.2	1500	.	4.5	0.32	1030	97	.	476	12.3	.	143	86.1	.
233	1930	52000	5562	1.60	13356	17.2	1500	.	4.5	0.32	1030	112	340	483	12.1	353	162	84.3	.
233	1945	52000	5562	1.60	13356	17.2	1500	2200	4.5	0.32	1030	126	339	501	12.1	352	182	82.3	7.5

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
233	2000	56000	5998	1.60	13356	18.0	1505	3700	4.6	0.32	1030	105	346	483	12.3	367	155	84.9	12
233	2015	56000	5993	1.60	13356	18.0	1505	3650	4.5	0.32	1030	87	350	572	11.5	351	122	88.2	12
233	2030	56000	5990	1.60	13356	18.0	1505	3510	4.6	0.32	1030	101	349	601	11.1	325	131	87.3	11
233	2045	56000	5993	1.60	13356	18.0	1505	3480	4.6	0.32	1030	100	353	587	10.7	316	125	87.9	11
233	2100	50000	5348	1.60	13356	19.7	1440	3570	4.5	0.37	1030	101	358	577	10.6	317	125	87.9	13
233	2115	50000	5348	1.60	13356	19.7	1440	3760	4.5	0.37	1030	99	360	588	10.5	316	121	88.2	13
233	2130	50000	5348	1.60	13356	19.7	1440	3610	4.5	0.37	1030	95	364	568	11.2	343	125	87.9	13
233	2145	50000	5348	1.60	13356	19.7	1440	3460	4.5	0.37	1030	94	360	572	11.8	361	131	87.2	12
233	2200	54000	5776	1.60	13356	19.5	1530	3420	4.6	0.35	1030	86	357	577	12.2	373	126	87.8	11
233	2215	54000	5776	1.60	13356	19.5	1530	3510	4.6	0.35	1030	76	354	606	12.3	376	112	89.1	12
233	2230	54000	5776	1.60	13356	19.5	1530	3760	4.6	0.35	1030	72	359	558	12.5	390	109	89.4	12
233	2245	54000	5776	1.50	13356	19.5	1530	3810	4.5	0.35	1030	92	367	548	11.3	349	122	88.2	13
233	2300	52000	5562	1.50	13356	19.5	1470	2240	4.5	0.35	1030	138	367	500	10.4	319	167	83.8	7.6
233	2315	52000	5562	1.60	13356	19.5	1470	2000	4.5	0.35	1030	125	355	430	11.0	328	161	84.4	6.8
233	2330	52000	5562	1.60	13356	19.5	1470	1920	4.5	0.36	1030	90	347	452	11.8	348	126	87.8	6.5
233	2345	52000	5562	1.60	13356	19.5	1470	2000	4.5	0.36	1030	81	339	470	11.8	340	113	89.0	6.8

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
234	0	54000	5776	1.60	13356	19.5	1500	2060	4.5	0.35	1030	85	359	513	11.8	360	119	88.5	6.8
234	15	54000	5776	1.60	13356	19.5	1500	2010	4.5	0.35	1030	86	360	466	11.7	357	119	88.5	6.6
234	30	54000	5776	1.60	13356	19.5	1500	1970	4.5	0.35	1030	94	350	488	11.8	351	131	87.2	6.5
234	45	54000	5776	1.60	13356	19.5	1500	1950	4.5	0.35	1030	114	355	509	11.2	334	149	85.5	6.4
234	100	50000	5348	1.60	13356	19.5	1490	2080	4.6	0.35	1030	122	365	465	11.3	347	162	84.3	7.4
234	115	50000	5348	1.60	13356	19.5	1490	1960	4.6	0.35	1030	101	359	427	11.6	353	138	86.6	6.9
234	130	50000	5348	1.60	13356	19.5	1490	1950	4.6	0.35	1030	85	362	413	11.8	363	119	88.5	6.9
234	145	50000	5348	1.60	13356	19.5	1490	1960	4.6	0.35	1030	80	356	414	11.8	357	112	89.1	5.9
234	200	50000	5348	1.60	13356	19.5	1480	2020	4.5	0.35	1030	97	347	440	11.7	345	134	87.0	7.2
234	215	50000	5348	1.60	13356	19.5	1480	2180	4.6	0.35	1030	98	346	433	11.9	351	138	86.6	7.7
234	230	50000	5348	1.60	13356	19.5	1480	2050	4.6	0.35	1030	100	357	447	12.0	365	143	86.1	7.3
234	245	50000	5348	1.60	13356	19.5	1480	2020	4.5	0.35	1030	95	376	444	12.1	390	137	86.7	7.2
234	300	50000	5348	1.60	13356	19.5	1480	2030	4.6	0.35	1030	94	363	423	12.0	379	134	87.0	7.2
234	315	50000	5348	1.60	13356	19.5	1480	2060	4.5	0.35	1030	93	359	427	12.1	373	134	87.0	7.3
234	330	50000	5348	1.60	13356	19.5	1480	2140	4.6	0.35	1030	99	356	427	11.7	353	137	86.7	7.6
234	345	50000	5348	1.60	13356	19.5	1480	2210	4.5	0.35	1030	107	360	446	11.7	357	148	85.6	7.8
234	400	50000	5348	1.60	13356	18.7	1480	2060	4.6	0.34	1030	104	357	409	11.8	358	145	85.9	7.3
234	415	50000	5348	1.60	13356	18.7	1480	2070	4.6	0.34	1030	104	368	404	11.8	369	145	85.9	7.3
234	430	50000	5348	1.60	13356	18.7	1480	2070	4.6	0.34	1030	109	365	428	11.8	366	152	85.2	7.3
234	445	50000	5348	1.60	13356	18.7	1480	2110	4.5	0.34	1030	111	360	430	11.8	361	155	84.9	7.5
234	500	50000	5348	1.60	13356	18.7	1490	2180	4.6	0.34	1030	107	353	430	11.8	359	150	85.5	7.7
234	515	50000	5348	1.60	13356	18.7	1490	2210	4.6	0.34	1030	88	359	430	11.9	364	124	87.9	7.8
234	530	50000	5348	1.60	13356	18.7	1490	2140	4.5	0.34	1030	104	361	442	11.6	355	142	86.2	7.6
234	545	50000	5348	1.60	13356	18.7	1490	2060	4.5	0.34	1030	99	362	435	11.3	344	131	87.3	7.3
234	600	52000	5562	1.60	13356	17.7	1490	2130	4.6	0.32	1030	101	357	428	11.1	333	131	87.3	7.3
234	615	52000	5562	1.60	13356	17.7	1490	2020	4.5	0.32	1030	122	354	414	11.2	333	160	84.5	6.9
234	630	52000	5562	1.60	13356	17.7	1490	2050	4.5	0.32	1030	147	352	412	11.1	328	191	81.5	7.0
234	645	52000	5562	1.50	13356	17.7	1490	2100	4.5	0.32	1030	142	360	441	11.2	339	186	81.9	7.2
234	700	48000	5134	1.60	13356	17.7	1455	2150	4.7	0.31	1030	109	364	407	11.6	358	149	85.5	7.3
234	715	48000	5134	1.60	13356	17.7	1455	2290	4.7	0.31	1030	92	359	433	12.0	368	131	87.2	8.5
234	730	48000	5134	1.60	13356	17.7	1455	2430	4.7	0.31	1030	98	358	466	11.7	355	135	86.8	9.0
234	745	48000	5134	1.60	13356	17.7	1455	2680	4.7	0.31	1030	99	358	465	11.9	359	138	86.6	9.9
234	800	48000	5134	1.60	13356	17.7	1460	2640	4.6	0.32	1030	95	357	463	11.9	362	134	87.0	9.7
234	815	48000	5134	1.60	13356	17.7	1460	2520	4.6	0.32	1030	.	362	477	11.9	367	.	.	9.3
234	830	48000	5134	1.50	13356	17.7	1460	2520	4.5	0.32	1030	.	353	.	.	.	.	.	9.3
234	845	48000	5134	1.50	13356	17.7	1460	2530	4.6	0.32	1030	.	351	.	.	.	.	.	9.3
234	900	58000	6204	1.60	13356	18.0	1475	2490	4.7	0.32	1030	.	354	.	.	.	.	.	7.6
234	915	58000	6204	1.60	13356	18.0	1475	2400	4.7	0.32	1030	.	357	.	.	.	.	.	7.3
234	930	58000	6204	1.60	13356	18.0	1475	2530	4.7	0.32	1030	.	362	478	10.6	321	.	.	7.7
234	945	58000	6204	1.60	13356	18.0	1475	2700	4.7	0.32	1030	.	359	479	10.3	309	.	.	8.2

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
234	1000	59000	6311	1.60	13356	18.0	1513	2770	4.7	0.32	1030	.	357	433	10.4	311	.	.	9.3
234	1015	59000	6311	1.60	13356	18.0	1513	2920	4.7	0.32	1030	.	356	446	10.6	316	.	.	8.8
234	1030	59000	6311	1.60	13356	19.0	1513	3010	4.7	0.32	1030	.	356	.	.	.	.	.	9.8
234	1045	59000	6311	1.60	13356	19.0	1513	.	4.7	0.32	1030	.	348	.	.	.	.	.	.
234	1100	59000	6311	1.60	13356	18.0	1500	.	4.7	0.32	1030	.	345	.	.	.	.	.	.
234	1115	59000	6311	1.60	13356	19.0	1500	3190	4.7	0.32	1030	.	344	.	.	.	.	.	9.6
234	1130	59000	6311	1.60	13356	18.0	1500	3070	4.7	0.32	1030	.	330	532	.	.	.	.	9.2
234	1145	59000	6311	1.60	13356	18.0	1500	2970	4.7	0.32	1030	.	.	511	.	.	.	.	8.9
234	1200	.	.	1.60	13356	.	.	2910	.	.	1030	.	.	532	.	.	.	.	.
234	1215	.	.	1.60	13356	.	.	.	.	.	1030	.	.	516	.	.	.	.	.
234	1230	.	.	1.60	13356	.	.	.	.	.	1030	.	.	506	.	.	.	.	.
234	1245	.	.	1.60	13356	.	.	.	.	.	1030	.	.	517	.	.	.	.	.
234	1300	.	.	1.60	13356	.	.	.	.	.	1030	.	326	.	.	.	.	.	.
234	1315	.	.	1.60	13356	.	.	.	.	.	1030	.	327	.	.	.	.	.	.
234	1330	.	.	1.60	13356	.	.	.	.	.	1030	.	328	.	.	.	.	.	.
234	1345	.	.	1.60	13356	.	.	.	.	.	1030	.	335	.	.	.	.	.	.
234	1400	56000	5990	1.60	13356	18.2	1513	2960	5.0	0.30	1030	.	.	.	.	.	.	.	9.4
234	1415	56000	5990	1.60	13356	19.2	1513	2810	5.0	0.30	1030	.	.	.	.	.	.	.	8.9
234	1430	56000	5990	1.50	13356	19.2	1513	2390	5.0	0.30	1030	.	.	.	.	.	.	.	7.6
234	1445	56000	5990	1.60	13356	19.2	1513	2050	5.0	0.30	1030	.	.	.	.	.	.	.	6.5
234	1500	50000	5348	1.60	13356	18.2	1480	1880	4.5	0.34	1030	.	.	.	.	.	.	.	5.7
234	1515	50000	5348	1.60	13356	18.2	1480	1660	4.5	0.34	1030	.	.	.	.	.	.	.	5.9
234	1530	50000	5348	1.60	13356	18.2	1480	1670	4.5	0.34	1030	.	.	.	.	.	.	.	5.9
234	1545	50000	5348	1.60	13356	18.2	1480	1650	4.5	0.34	1030	.	.	463	14.1	.	.	.	5.9
234	1600	54000	5776	1.60	13356	17.0	1510	1640	4.6	0.30	1030	.	.	478	13.8	.	.	.	5.4
234	1615	54000	5776	1.60	13356	17.0	1510	1700	4.6	0.30	1030	.	.	415	13.9	.	.	.	5.6
234	1630	54000	5776	1.60	13356	17.0	1510	1730	4.6	0.30	1030	.	.	407	13.6	.	.	.	5.7
234	1645	54000	5776	1.60	13356	17.0	1510	2800	4.6	0.30	1030	.	.	388	13.9	.	.	.	9.2
234	1700	50000	5348	1.60	13356	17.7	1480	3540	4.5	0.33	1030	.	.	409	13.9	.	.	.	13
234	1715	50000	5348	1.60	13356	17.7	1480	3400	4.5	0.33	1030	.	.	417	13.9	.	.	.	12
234	1730	50000	5348	1.60	13356	17.7	1480	3750	4.5	0.33	1030	.	.	405	13.7	.	.	.	13
234	1745	50000	5348	1.60	13356	17.7	1480	5090	4.5	0.33	1030	.	.	442	14.0	.	.	.	18
234	1800	52000	5562	1.60	13356	19.5	1475	5060	4.5	0.35	1030	.	.	517	13.6	.	.	.	17
234	1815	52000	5562	1.60	13356	19.5	1475	4940	4.6	0.35	1030	104	.	556	12.5	.	157	84.7	17
234	1830	52000	5562	1.60	13356	19.5	1475	4780	4.6	0.35	1030	129	.	590	11.7	.	178	82.7	15
234	1845	52000	5562	1.60	13356	19.5	1475	4290	4.6	0.35	1030	109	.	566	12.1	.	158	84.7	15
234	1900	54000	5776	1.60	13356	18.5	1500	3030	4.5	0.34	1030	86	.	521	12.7	.	133	87.0	9.9
234	1915	54000	5776	1.60	13356	18.5	1500	2440	4.5	0.34	1030	61	324	471	13.1	379	99	90.3	8.3
234	1930	54000	5776	1.60	13356	18.5	1500	2640	4.5	0.34	1030	66	322	479	12.7	359	102	90.1	8.7
234	1945	54000	5776	1.60	13356	18.5	1500	.	4.5	0.34	1030	78	322	473	12.4	346	117	86.7	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
234	2000	54000	5776	1.60	13356	18.5	1480	.	4.3	0.32	1030	92	317	480	12.2	333	134	86.9	.
234	2015	54000	5776	1.60	13356	18.5	1480	2160	4.8	0.32	1030	100	319	458	12.1	331	145	86.0	7.1
234	2030	54000	5776	1.60	13356	18.5	1480	2030	4.8	0.32	1030	112	321	460	12.3	341	166	83.9	6.7
234	2045	54000	5776	1.60	13356	18.5	1480	2120	4.9	0.32	1030	101	322	466	12.4	346	151	85.3	7.0
234	2100	52000	5562	1.60	13356	18.7	1465	2180	4.5	0.35	1030	107	319	480	12.4	343	160	84.5	7.4
234	2115	52000	5562	1.60	13356	18.7	1465	2090	4.5	0.35	1030	113	312	516	12.4	335	169	83.6	7.1
234	2130	52000	5562	1.60	13356	18.7	1465	2080	4.5	0.35	1030	122	312	516	12.6	343	187	81.8	7.1
234	2145	52000	5562	1.60	13356	18.7	1465	2000	4.5	0.35	1030	120	314	506	12.7	350	186	81.8	6.8
234	2200	50000	5348	1.60	13356	18.7	1460	1850	4.6	0.34	1030	131	323	537	12.6	355	201	80.5	6.5
234	2215	50000	5348	1.60	13356	18.7	1460	1900	4.6	0.34	1030	122	335	545	12.8	378	192	81.4	6.7
234	2230	50000	5348	1.60	13356	18.7	1460	1940	4.5	0.34	1030	108	335	518	12.9	382	172	83.3	5.9
234	2245	50000	5348	1.60	13356	18.7	1460	1820	4.5	0.34	1030	103	334	470	12.9	381	164	84.1	6.4
234	2300	50000	5348	1.60	13356	18.7	1490	1920	4.6	0.34	1030	115	335	465	12.3	356	170	83.5	5.8
234	2315	50000	5348	1.60	13356	18.7	1490	2050	4.5	0.34	1030	123	331	447	12.3	352	182	82.3	7.3
234	2330	50000	5348	1.60	13356	18.7	1490	2010	4.6	0.34	1030	113	333	423	12.5	362	171	83.4	7.1
234	2345	50000	5348	1.60	13356	18.7	1490	1880	4.6	0.34	1030	121	336	446	12.5	365	183	82.2	6.7

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOx	E SO2	EFF %	CA/S
235	0	50000	5348	1.60	13356	18.7	1503	1730	4.6	0.34	1030	123	332	460	12.6	365	188	81.7	6.2
235	15	50000	5348	1.60	13356	18.7	1500	1830	4.6	0.34	1030	128	325	467	12.6	358	196	81.0	6.5
235	30	50000	5348	1.60	13356	18.7	1500	1863	4.6	0.34	1030	132	323	452	12.6	353	202	80.4	6.6
235	45	50000	5348	1.60	13356	18.7	1503	1990	4.6	0.34	1030	144	322	492	12.5	354	221	78.5	7.1
235	100	50000	5348	1.60	13356	17.7	1475	2060	4.6	0.32	1030	146	317	469	12.4	341	218	78.6	7.3
235	115	50000	5348	1.60	13356	17.7	1475	1950	4.6	0.32	1030	146	317	454	12.4	341	218	78.8	6.7
235	130	50000	5348	1.60	13356	17.7	1475	1870	4.6	0.32	1030	137	315	466	12.5	343	207	79.9	6.6
235	145	50000	5348	1.60	13356	17.7	1475	1900	4.6	0.32	1030	136	315	469	12.6	347	208	79.8	7.0
235	200	50000	5348	1.60	13356	17.7	1475	1990	4.6	0.32	1030	135	316	472	12.7	352	209	79.7	7.1
235	215	53300	5348	1.60	13356	17.7	1475	1950	4.6	0.32	1030	134	319	448	12.3	339	198	80.8	6.9
235	230	50300	5348	1.60	13356	17.7	1475	1993	4.6	0.32	1030	140	325	463	12.6	358	215	79.2	7.1
235	245	50000	5348	1.60	13356	17.7	1475	1910	4.6	0.32	1030	141	329	461	12.4	354	211	79.5	6.8
235	300	50000	5348	1.60	13356	17.7	1475	.	4.6	0.32	1030	145	323	462	12.3	343	214	79.2	.
235	315	50000	5348	1.60	13356	17.7	1475	.	4.6	0.32	1030	143	319	458	12.3	339	211	79.5	.
235	330	50000	5348	1.60	13356	17.7	1475	1970	4.6	0.32	1030	143	323	483	12.1	335	207	79.9	7.0
235	345	50000	5348	1.60	13356	17.7	1475	1880	4.6	0.32	1030	151	322	488	12.1	334	216	78.8	6.7
235	400	50000	5348	1.60	13356	17.7	1475	1910	4.6	0.32	1030	149	316	501	12.2	332	218	78.9	6.8
235	415	50300	5348	1.60	13356	17.7	1475	2030	4.6	0.32	1030	146	313	520	12.4	338	218	78.8	7.2
235	430	50000	5348	1.60	13356	17.7	1475	1890	4.6	0.32	1030	167	321	527	12.3	341	247	76.0	6.7
235	445	50000	5348	1.60	13356	17.7	1475	1900	4.6	0.32	1030	149	317	491	12.2	333	210	78.9	6.7
235	500	52000	5562	1.60	13356	17.7	1490	1883	4.7	0.31	1030	150	318	504	12.1	330	217	79.0	6.4
235	515	52500	5562	1.60	13356	17.7	1490	1910	4.7	0.31	1030	153	316	521	11.8	317	214	79.2	6.5
235	530	52300	5562	1.60	13356	17.7	1490	2030	4.7	0.31	1030	155	319	513	12.0	327	222	78.5	6.9
235	545	52100	5562	1.60	13356	17.7	1490	2060	4.7	0.31	1030	177	323	521	11.9	325	250	75.7	6.8
235	600	57000	6097	1.60	13356	18.8	1450	1990	4.6	0.33	1030	185	321	539	11.7	319	256	75.2	6.2
235	615	57300	6097	1.60	13356	18.8	1450	2190	4.6	0.33	1030	154	322	528	11.9	327	210	78.9	6.8
235	630	57000	6097	1.60	13356	18.8	1450	2220	4.6	0.33	1030	130	317	521	12.0	325	186	82.1	5.9
235	645	57000	6097	1.60	13356	18.8	1453	.	4.6	0.33	1030	130	314	519	[illegible]	[illegible]	187	80.9	.
235	700	65000	6952	1.60	13356	19.5	1523	.	4.6	0.35	1030	197	314	606	11.8	315	275	73.3	.
235	715	65000	6952	1.60	13356	19.5	1520	.	4.6	0.35	1030	230	316	777	10.1	267	271	73.7	.
235	730	65000	6952	1.60	13356	19.5	1523	4100	4.6	0.35	1030	257	311	823	9.2	243	279	72.9	11
235	745	65000	6952	1.60	13356	19.5	1520	3300	4.6	0.35	1030	171	306	769	9.5	245	191	81.5	9.0
235	800	52000	5562	1.60	13356	20.0	1450	2300	4.5	0.37	1030	.	315	.	.	.	.	.	7.0
235	815	52000	5562	1.60	13356	20.0	1450	2290	4.5	0.37	1030	.	312	.	.	.	.	.	7.6
235	830	52000	5562	1.60	13356	20.0	1450	2100	4.5	0.37	1030	.	309	.	.	.	.	.	7.5
235	845	52000	5562	1.60	13356	20.0	1450	2040	4.5	0.37	1030	.	312	.	.	.	.	.	8.0
235	900	50000	5348	1.60	13356	19.0	1445	2490	4.5	0.35	1030	.	307	.	.	.	.	.	8.8
235	915	50000	5348	1.60	13356	19.0	1445	2440	4.5	0.35	1030	.	309	.	.	.	.	.	8.0
235	930	50000	5348	1.60	13356	19.0	1445	2660	4.5	0.35	1030	.	317	.	.	.	.	.	8.0
235	945	50000	5348	1.60	13356	19.0	1445	.	4.5	0.35	1030	.	316	.	.	.	.	.	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
235	1000	.	.	1.60	13355	.	.	.	.	.	1030	.	310	.	.	.	.	.	.
235	1015	.	.	1.60	13356	.	.	.	.	.	1030	.	307	.	.	.	.	.	.
235	1030	.	.	1.60	13356	.	.	1700	.	.	1030	.	295	.	.	.	.	.	.
235	1045	.	.	1.60	13356	.	.	3770	.	.	1030	.	285	.	.	.	.	.	.
235	1100	57000	6097	1.60	13356	18.5	1490	3360	4.5	0.34	1030	.	265	.	.	.	.	.	10
235	1115	57000	6097	1.59	13356	18.5	1490	2890	4.5	0.34	1030	.	287	.	13.2	340	.	.	9.3
235	1130	57000	6097	1.60	13356	18.5	1490	2800	4.5	0.34	1030	.	.	.	13.1	.	.	.	8.7
235	1145	57000	6097	1.59	13356	18.5	1490	2750	4.5	0.34	1030	.	.	.	13.0	.	.	.	8.5
235	1200	50000	5348	1.60	13356	17.7	1460	2750	4.4	0.33	1030	.	.	.	12.8	.	.	.	9.3
235	1215	50000	5348	1.59	13356	17.7	1480	2880	4.4	0.33	1030	.	.	.	12.7	.	.	.	10
235	1230	50000	5348	1.60	13356	17.7	1480	.	4.4	0.33	1030	.	.	596	12.9	.	.	.	.
235	1245	50000	5348	1.60	13356	17.7	1480	2840	4.4	0.33	1030	.	.	591	13.1	.	.	.	10
235	1300	50000	5348	1.60	13356	17.7	1470	2810	4.4	0.33	1030	.	.	582	13.2	.	.	.	10
235	1315	50000	5348	1.60	13356	17.7	1470	2900	4.4	0.33	1030	.	.	584	13.2	.	.	.	10
235	1330	50000	5348	1.60	13356	17.7	1470	2790	4.4	0.33	1030	.	.	568	12.9	.	.	.	9.9
235	1345	50000	5348	1.59	13355	17.7	1470	2750	4.4	0.33	1030	.	.	551	12.7	.	.	.	9.7
235	1400	50000	5348	1.60	13356	17.7	1490	2560	4.3	0.34	1030	.	.	546	13.0	.	.	.	9.4
235	1415	50000	5348	1.59	13356	17.7	1490	2500	4.3	0.34	1030	.	.	538	13.0	.	.	.	8.3
235	1430	50000	5348	1.60	13356	17.7	1490	2500	4.3	0.34	1030	.	.	517	13.0	.	.	.	8.9
235	1445	50000	5348	1.60	13356	17.7	1490	2510	4.3	0.34	1030	.	.	533	13.1	.	.	.	8.9
235	1500	48000	5134	1.60	13356	18.0	1450	2600	4.6	0.32	1030	.	.	512	13.4	.	.	.	9.6
235	1515	48000	5134	1.59	13356	18.0	1450	2710	4.5	0.32	1030	.	.	516	13.4	.	.	.	10
235	1530	48000	5134	1.60	13356	18.0	1450	2630	4.6	0.32	1030	.	.	529	13.3	.	.	.	9.7
235	1545	48000	5134	1.60	13356	18.0	1450	2590	4.6	0.32	1030	.	312	570	13.1	365	.	.	9.6
235	1600	48000	5134	1.60	13355	18.5	1450	2630	4.5	0.33	1030	.	317	559	13.1	371	.	.	9.7
235	1615	48000	5134	1.60	13356	18.5	1450	2430	4.6	0.33	1030	.	328	565	13.5	405	.	.	9.0
235	1630	48000	5134	1.59	13356	18.5	1450	2560	4.6	0.33	1030	.	322	545	13.4	392	.	.	9.5
235	1645	48000	5134	1.60	13356	18.5	1450	2390	4.6	0.33	1030	.	327	547	13.4	398	.	.	8.8
235	1700	50000	5348	1.60	13356	19.5	1450	2290	4.6	0.35	1030	.	322	569	13.2	382	.	.	8.1
235	1715	50000	5348	1.60	13356	19.5	1450	2210	4.5	0.35	1030	.	325	574	13.1	381	.	.	7.8
235	1730	50000	5348	1.60	13356	19.5	1450	2300	4.6	0.35	1030	.	325	569	13.0	376	.	.	8.2
235	1745	50000	5348	1.60	13356	19.5	1450	2370	4.5	0.35	1030	.	327	580	12.7	364	.	.	8.4
235	1800	50000	5348	1.60	13356	19.5	1480	2330	4.5	0.35	1030	.	.	553	12.5	.	.	.	8.3
235	1815	50000	5348	1.60	13356	19.5	1480	2280	4.5	0.35	1030	.	.	566	12.4	.	.	.	8.1
235	1830	50000	5348	1.60	13356	19.5	1480	2290	4.5	0.35	1030	.	326	565	12.2	342	.	.	8.1
235	1845	50000	5348	1.60	13356	19.5	1480	2420	4.5	0.35	1030	.	320	578	12.2	336	.	.	8.6
235	1900	52000	5562	1.60	13356	20.0	1490	.	4.5	0.35	1030	93	314	567	12.2	330	136	86.8	.
235	1915	52000	5562	1.60	13356	20.0	1490	.	4.8	0.35	1030	92	306	565	12.4	329	138	86.6	.
235	1930	52000	5562	1.60	13356	20.0	1490	2230	4.8	0.35	1030	89	305	542	12.3	324	132	87.2	7.6
235	1945	52000	5562	1.60	13356	20.0	1490	2340	4.3	0.35	1030	94	309	527	12.2	324	137	86.7	8.0

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
235	2000	52000	5562	1.60	13356	20.0	1490	2360	4.6	0.36	1030	92	308	529	12.2	323	134	86.9	8.0
235	2015	52000	5562	1.60	13356	20.0	1490	2370	4.6	0.36	1030	96	304	570	12.5	331	145	85.9	8.1
235	2030	52000	5562	1.60	13356	20.0	1490	2360	4.5	0.36	1030	106	301	619	12.5	327	161	84.4	8.3
235	2045	52000	5562	1.60	13356	20.0	1490	2350	4.5	0.36	1030	104	297	630	12.3	315	154	85.1	8.0
235	2100	52000	5562	1.60	13356	20.0	1490	2240	4.5	0.35	1030	99	297	501	12.2	312	145	85.9	7.5
235	2115	52000	5562	1.60	13356	20.0	1490	2160	4.6	0.35	1030	84	300	538	12.2	315	123	88.1	7.4
235	2130	52000	5562	1.60	13356	20.0	1490	2230	4.5	0.35	1030	71	301	498	12.1	312	103	90.0	7.6
235	2145	52000	5562	1.60	13356	20.0	1490	2410	4.5	0.35	1030	74	301	479	12.3	320	109	89.4	8.2
235	2200	50000	5348	1.60	13356	18.5	1460	2500	4.6	0.33	1030	81	303	465	12.2	318	118	88.5	8.9
235	2215	50000	5348	1.60	13356	18.5	1460	2340	4.6	0.33	1030	85	307	499	12.2	322	124	87.9	8.3
235	2230	50000	5348	1.60	13356	18.5	1460	2140	4.6	0.33	1030	84	311	529	12.2	327	123	88.1	7.6
235	2245	50000	5348	1.60	13356	18.5	1460	2180	4.5	0.33	1030	89	312	562	12.1	324	129	87.5	7.7
235	2300	50000	5348	1.60	13356	18.5	1460	2060	4.6	0.33	1030	94	314	559	12.1	326	136	86.8	7.3
235	2315	50000	5348	1.60	13356	18.5	1460	1960	4.5	0.33	1030	97	315	557	12.1	327	140	86.4	6.9
235	2330	50000	5348	1.60	13356	18.5	1460	2080	4.5	0.33	1030	98	314	563	12.1	325	142	86.2	7.4
235	2345	50000	5348	1.60	13356	18.5	1460	2220	4.6	0.33	1030	101	312	586	12.0	320	144	86.0	7.9

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
236	0	50000	5348	1.60	13356	18.5	1480	2140	4.6	0.33	1030	87	317	562	12.0	325	124	87.9	7.6
236	15	50000	5348	1.60	13356	18.5	1480	2020	4.6	0.33	1030	87	308	547	12.1	328	126	87.8	7.2
236	30	50000	5348	1.60	13356	18.5	1480	1990	4.6	0.33	1030	87	312	562	12.0	328	124	87.9	7.1
236	45	50000	5348	1.60	13356	18.5	1480	2000	4.6	0.33	1030	87	316	557	12.2	332	127	87.7	7.1
236	100	50000	5348	1.60	13356	19.5	1460	1950	4.8	0.34	1030	97	320	552	12.3	340	143	86.1	6.9
236	115	50000	5348	1.60	13356	19.5	1460	1940	4.8	0.34	1030	97	325	571	12.4	343	145	85.9	6.9
236	130	50000	5348	1.60	13356	19.5	1460	1940	4.8	0.34	1030	97	326	583	12.3	345	143	86.1	6.9
236	145	50000	5348	1.60	13356	19.5	1460	1900	4.8	0.34	1030	97	321	609	12.0	329	139	86.5	6.7
236	200	50000	5348	1.60	13356	19.5	1440	2000	4.6	0.35	1030	87	322	599	11.9	327	123	88.1	7.1
236	215	50000	5348	1.60	13356	19.5	1440	2150	4.6	0.35	1030	87	323	578	12.1	335	126	87.8	7.6
236	230	50000	5348	1.60	13356	19.5	1440	2040	4.6	0.35	1030	87	316	599	11.8	317	122	88.2	7.2
236	245	50000	5348	1.60	13356	19.5	1440	1880	4.6	0.35	1030	87	314	599	12.1	326	126	87.8	6.4
236	300	53000	5669	1.60	13356	19.5	1490	1860	4.6	0.35	1030	125	315	641	11.7	313	173	83.2	6.2
236	315	53000	5669	1.60	13356	19.5	1490	1970	4.6	0.35	1030	125	312	599	11.1	291	162	84.2	5.6
236	330	53000	5669	1.60	13356	19.5	1490	1970	4.6	0.35	1030	125	312	599	11.2	294	164	84.1	5.6
236	345	53000	5669	1.60	13356	19.5	1490	1960	4.6	0.35	1030	125	314	599	11.6	308	171	83.4	5.6
236	400	52000	5562	1.60	13356	19.5	1480	1930	4.6	0.35	1030	106	310	619	11.7	308	147	85.8	5.5
236	415	52000	5562	1.60	13356	19.5	1480	.	4.5	0.35	1030	106	310	605	11.7	308	147	85.8	.
236	430	52000	5562	1.60	13356	19.5	1480	.	4.6	0.35	1030	106	301	610	11.7	299	147	85.8	.
236	445	52000	5562	1.60	13356	19.5	1480	1950	4.6	0.35	1030	106	303	609	11.5	294	143	86.1	6.6
236	500	54000	5776	1.60	13356	19.5	1480	1880	4.6	0.35	1030	154	305	587	11.5	295	208	79.8	5.2
236	515	54000	5776	1.60	13356	19.5	1480	1870	4.6	0.35	1030	154	304	608	11.7	302	213	79.3	5.1
236	530	54000	5776	1.60	13356	19.5	1480	2000	4.6	0.35	1030	154	310	627	11.1	289	200	80.6	6.6
236	545	54000	5775	1.60	13356	19.5	1460	2010	4.5	0.35	1030	154	304	615	10.9	278	196	81.0	6.6
236	600	52000	5562	1.60	13356	20.0	1445	2050	4.8	0.35	1030	116	302	613	11.1	281	151	85.4	7.0
236	615	52000	5562	1.60	13356	20.0	1445	2030	4.8	0.35	1030	116	295	528	11.0	272	149	85.5	6.9
236	630	52000	5562	1.60	13356	20.0	1445	2080	4.8	0.35	1030	116	301	634	11.4	289	155	84.9	7.1
236	645	52000	5562	1.60	13356	20.0	1445	2080	4.8	0.35	1030	116	311	605	11.6	305	159	84.6	7.1
236	700	52000	5562	1.60	13356	19.7	1465	2110	4.6	0.35	1030	125	311	632	11.7	309	173	83.2	7.2
236	715	52000	5562	1.60	13356	19.7	1465	1650	4.6	0.35	1030	125	310	632	11.6	304	171	83.4	5.6
236	730	52000	5562	1.60	13356	19.7	1465	1620	4.6	0.35	1030	125	304	624	11.5	295	169	83.6	5.5
236	745	52000	5562	1.60	13356	19.7	1465	1750	4.6	0.35	1030	125	299	629	11.4	287	167	83.8	6.0
236	800	52000	5562	1.60	13356	19.5	1460	1720	4.8	0.34	1030	97	302	625	11.5	293	131	87.3	5.9
236	815	52000	5562	1.60	13356	19.5	1460	1600	4.8	0.34	1030	97	304	623	11.4	292	130	87.4	5.5
236	830	52000	5562	1.60	13356	19.5	1460	1610	4.8	0.34	1030	97	308	618	11.5	299	131	87.3	5.5
236	845	52000	5562	1.60	13356	19.5	1460	1670	4.8	0.34	1030	97	306	618	11.7	304	134	87.0	5.7
236	900	60000	6419	1.60	13356	19.5	1510	1610	4.8	0.34	1030	.	307	624	11.8	308	.	.	4.8
236	915	60000	6418	1.60	13356	19.5	1510	1480	4.8	0.34	1030	.	307	.	.	.	.	.	4.4
236	930	60000	6418	1.60	13356	19.5	1510	1560	4.8	0.34	1030	.	297	.	.	.	.	.	4.6
236	945	60000	6418	1.60	13356	19.5	1510	1650	4.8	0.34	1030	.	304	.	.	.	.	.	4.9

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
236	1000	52000	5562	1.60	13356	19.2	1465	1660	4.6	0.34	1030	.	301	.	.	.	.	.	5.7
236	1015	52000	5562	1.60	13356	19.2	1465	1960	4.6	0.34	1030	.	296	.	.	.	.	.	5.7
236	1030	52000	5562	1.60	13356	19.2	1465	1720	4.6	0.34	1030	.	295	.	.	.	.	.	5.9
236	1045	52000	5562	1.60	13356	19.2	1465	.	4.6	0.34	1030	.	297	.	.	.	.	.	.
236	1100	54000	5776	1.60	13356	19.0	1490	.	5.2	0.30	1030	164	296	.	.	.	.	.	.
236	1115	54000	5776	1.60	13356	19.0	1490	1600	5.2	0.30	1030	164	298	.	.	.	.	.	5.3
236	1130	54000	5776	1.60	13356	19.0	1490	1710	5.2	0.30	1030	164	299	.	.	.	.	.	5.5
236	1145	54000	5776	1.60	13356	19.0	1490	1870	5.2	0.30	1030	164	296	566	12.2	311	240	76.7	6.1
236	1200	52000	5562	1.60	13356	18.7	1480	1780	4.6	0.34	1030	145	289	561	12.5	314	220	78.7	6.1
236	1215	52000	5562	1.60	13356	18.7	1480	1800	4.6	0.34	1030	145	290	578	12.5	315	220	78.7	6.1
236	1230	52000	5562	1.60	13356	18.7	1480	1910	4.6	0.34	1030	145	299	591	12.7	333	225	78.2	6.5
236	1245	52000	5562	1.60	13356	18.7	1480	1900	4.6	0.34	1030	145	298	580	12.4	320	217	78.9	6.5
236	1300	54000	5776	1.60	13356	18.5	1490	2130	5.0	0.31	1030	164	298	590	12.3	317	243	76.5	7.0
236	1315	54000	5776	1.60	13356	18.5	1490	2200	5.0	0.31	1030	164	294	546	12.3	312	243	76.5	7.2
236	1330	54000	5776	1.60	13356	18.5	1490	2210	5.0	0.31	1030	164	288	544	12.3	305	243	76.5	7.3
236	1345	54000	5776	1.60	13356	18.5	1490	2340	5.0	0.31	1030	164	294	529	12.2	309	240	75.7	6.7
236	1400	54000	5776	1.60	13356	19.0	1490	2060	4.9	0.33	1030	135	298	527	12.2	313	197	80.8	5.8
236	1415	54000	5776	1.60	13356	19.0	1490	2110	4.9	0.33	1030	135	305	523	12.1	317	195	81.1	5.9
236	1430	54000	5776	1.60	13356	19.0	1490	2030	4.8	0.33	1030	135	305	511	12.4	328	202	80.4	6.7
236	1445	54000	5776	1.60	13356	19.0	1490	1870	4.8	0.33	1030	135	308	557	12.6	339	207	79.9	5.2
236	1500	52000	5562	1.60	13356	19.0	1500	1990	4.9	0.33	1030	145	307	592	12.6	338	222	78.4	6.7
236	1515	52000	5562	1.60	13356	19.0	1500	1900	4.9	0.33	1030	145	307	582	12.5	338	222	78.4	6.5
236	1530	52000	5562	1.60	13356	19.0	1500	1950	4.9	0.33	1030	145	307	577	12.4	330	217	78.9	6.5
236	1545	52000	5562	1.60	13356	19.0	1500	1960	4.8	0.33	1030	145	302	560	12.3	321	214	79.2	5.7
236	1600	52000	5562	1.60	13356	19.0	1500	1940	4.9	0.33	1030	.	295	.	.	.	.	.	6.5
236	1615	52000	5562	1.60	13356	19.0	1500	1880	4.8	0.33	1030	.	294	.	.	.	.	.	5.4
236	1630	52000	5562	1.60	13356	19.0	1500	1870	4.9	0.33	1030	.	300	.	.	.	.	.	5.4
236	1645	52000	5562	1.60	13356	19.0	1500	1690	4.8	0.33	1030	.	298	482	12.2	313	.	.	5.4
236	1700	50000	5348	1.60	13356	19.0	1460	1890	4.3	0.33	1030	177	304	510	12.1	316	256	75.2	5.7
236	1715	50000	5348	1.60	13356	19.0	1460	1850	4.8	0.33	1030	177	296	512	12.3	314	262	74.6	6.6
236	1730	50000	5348	1.60	13356	19.0	1460	1780	4.8	0.33	1030	191	291	572	12.4	313	286	72.3	6.3
236	1745	50000	5348	1.60	13356	19.0	1460	1820	4.9	0.33	1030	186	287	588	12.4	308	278	73.0	6.4
236	1800	52000	5562	1.60	13356	19.0	1480	1830	4.8	0.33	1030	170	290	540	12.9	331	270	73.8	6.2
236	1815	52000	5562	1.60	13356	19.0	1480	1730	4.8	0.33	1030	152	294	497	12.3	336	242	76.5	5.9
236	1830	52000	5562	1.60	13356	19.0	1480	1850	4.9	0.33	1030	159	302	487	12.5	328	241	76.6	5.3
236	1845	52000	5562	1.60	13356	19.0	1460	1800	4.8	0.33	1030	196	308	476	12.4	331	293	71.5	6.1
236	1900	50000	5348	1.60	13356	19.0	1460	1770	4.9	0.33	1030	163	305	495	12.4	328	244	76.3	5.3
236	1915	50000	5348	1.60	13356	19.0	1460	1710	4.8	0.33	1030	160	300	498	12.5	326	242	75.5	6.1
236	1930	50000	5348	1.60	13356	19.0	1460	1700	4.8	0.33	1030	156	298	493	12.6	328	239	76.8	6.0
236	1945	50000	5348	1.60	13356	19.0	1460	1820	4.8	0.33	1030	160	293	520	12.6	322	245	76.2	6.4

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	STM BLR LB	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
236	2000	50000	5348	1.60	13356	19.0	1490	1850	4.9	0.32	1030	145	293	496	12.6	322	222	78.4	6.6
236	2015	50000	5348	1.60	13356	19.0	1490	1980	4.9	0.32	1030	149	288	512	12.7	321	231	77.6	7.0
236	2030	50000	5348	1.60	13356	19.0	1490	.	4.9	0.32	1030	154	290	507	12.5	315	233	77.4	.
236	2045	50000	5348	1.60	13356	19.0	1490	.	4.9	0.32	1030	153	287	523	12.6	315	234	77.2	.
236	2100	50000	5348	1.60	13356	19.0	1490	.	4.9	0.32	1030	145	289	512	12.5	314	220	78.7	.
236	2115	50000	5348	1.60	13356	19.0	1490	1940	4.9	0.32	1030	145	294	500	12.3	312	214	79.2	6.9
236	2130	50000	5348	1.60	13356	19.0	1490	1820	4.9	0.32	1030	145	287	516	12.4	308	217	78.9	6.4
236	2145	50000	5348	1.60	13356	19.0	1490	1770	4.9	0.32	1030	145	284	525	12.5	309	220	78.7	6.3
236	2200	50000	5348	1.60	13356	18.5	1480	1840	4.8	0.32	1030	135	279	499	12.5	303	204	80.2	6.5
236	2215	50000	5348	1.60	13356	18.5	1480	1900	4.8	0.32	1030	135	282	484	12.6	310	207	79.9	6.7
236	2230	50000	5348	1.60	13356	18.5	1480	1930	4.9	0.32	1030	135	282	500	12.6	310	207	79.9	5.8
236	2245	50000	5348	1.60	13356	18.5	1480	1900	4.8	0.32	1030	135	277	496	12.7	309	209	79.7	5.7
236	2300	50000	5348	1.60	13356	18.5	1480	1820	4.8	0.32	1030	157	282	463	12.8	318	247	76.1	5.4
236	2315	50000	5348	1.60	13356	18.5	1480	1760	4.8	0.32	1030	150	285	476	12.7	317	233	77.4	5.2
236	2330	50000	5348	1.60	13356	18.5	1480	1790	4.8	0.32	1030	158	282	473	12.7	314	245	76.2	6.3
236	2345	50000	5348	1.60	13356	18.5	1480	1800	4.8	0.32	1030	154	281	476	12.7	313	239	75.8	6.4

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	EST BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
239	0	50000	5348	1.60	13356	18.5	1460	1700	4.8	0.32	1030	145	285	492	12.5	310	220	78.7	6.0
239	15	50000	5348	1.60	13356	18.5	1460	1750	4.8	0.32	1030	130	277	503	12.9	316	207	79.9	6.2
239	30	50000	5348	1.60	13356	18.5	1460	1940	4.8	0.32	1030	138	275	512	12.8	313	217	79.0	5.9
239	45	50000	5348	1.60	13356	18.5	1460	1710	4.8	0.32	1030	141	271	492	12.7	302	219	78.8	6.1
239	100	50000	5348	1.60	13356	18.5	1463	2030	4.8	0.32	1030	134	272	509	12.7	303	208	79.8	7.2
239	115	50000	5348	1.60	13356	18.5	1460	1690	4.8	0.32	1030	134	271	500	12.8	305	210	79.5	5.0
239	130	50000	5348	1.60	13356	18.5	1460	1670	4.8	0.32	1030	135	268	498	12.9	305	215	79.2	5.9
239	145	50000	5348	1.60	13356	18.5	1463	1610	4.8	0.32	1030	140	277	532	12.6	305	215	79.2	5.7
239	200	50000	5348	1.60	13356	18.5	1460	1570	4.8	0.32	1030	141	274	525	12.6	302	216	79.0	5.6
239	215	50000	5348	1.60	13356	18.5	1460	1610	4.8	0.32	1030	140	274	511	12.6	302	215	79.2	5.7
239	230	50000	5348	1.60	13356	18.5	1463	1680	4.8	0.32	1030	144	271	517	12.5	295	218	78.8	6.0
239	245	50000	5348	1.60	13356	18.5	1460	.	4.8	0.32	1030	145	273	518	12.3	290	214	79.2	.
239	300	50000	5348	1.60	13356	18.5	1460	.	4.8	0.32	1030	136	269	499	12.6	296	208	79.8	.
239	315	50000	5348	1.60	13356	18.5	1460	.	4.8	0.32	1030	139	267	506	12.8	301	218	78.8	.
239	330	50000	5348	1.60	13356	18.5	1460	1900	4.8	0.32	1030	152	265	519	12.5	288	230	77.7	5.7
239	345	50000	5348	1.60	13356	18.5	1460	1790	4.8	0.32	1030	127	265	534	12.5	289	192	81.3	6.3
239	400	50000	5348	1.60	13356	18.5	1490	2270	4.8	0.32	1030	150	271	514	12.5	295	227	77.9	8.0
239	415	50000	5348	1.60	13356	18.5	1490	1600	4.8	0.32	1030	172	263	567	12.9	300	273	73.5	5.7
239	430	50000	5348	1.60	13356	18.5	1490	1650	4.8	0.32	1030	175	255	600	12.9	291	278	73.0	5.8
239	445	50000	5348	1.60	13356	18.5	1493	1700	4.8	0.32	1030	169	259	586	12.5	282	256	75.2	6.0
239	500	50000	5348	1.60	13356	18.5	1493	1650	4.8	0.32	1030	166	253	565	12.5	282	251	75.6	5.8
239	515	50000	5348	1.60	13356	18.5	1493	1600	4.8	0.32	1030	167	264	542	12.5	287	253	75.5	5.7
239	530	50000	5348	1.60	13356	18.5	1493	1620	4.8	0.32	1030	171	265	514	12.6	293	262	74.6	5.7
239	545	50000	5348	1.60	13356	18.5	1490	1650	4.8	0.32	1030	185	267	508	12.5	293	283	72.8	5.8
239	600	52000	5562	1.60	13356	18.5	1450	1620	4.8	0.32	1030	147	273	492	12.5	297	223	78.4	5.5
239	615	52000	5562	1.60	13356	18.5	1450	1570	4.8	0.32	1030	139	269	500	12.7	300	216	79.1	5.3
239	630	52000	5562	1.60	13356	18.5	1450	1580	4.8	0.32	1030	183	266	516	12.9	304	291	71.8	5.4
239	645	52000	5562	1.60	13356	18.5	1450	1630	4.8	0.32	1030	195	265	509	12.9	303	310	69.9	5.6
239	700	50000	5348	1.60	13356	18.5	1450	1590	4.8	0.32	1030	172	263	539	12.8	297	270	73.8	5.6
239	715	50000	5348	1.60	13356	18.5	1453	1570	4.8	0.32	1030	176	257	557	13.0	297	283	72.5	5.6
239	730	50000	5348	1.60	13356	18.5	1453	1560	4.8	0.32	1030	177	251	565	13.1	294	289	72.8	5.5
239	745	50000	5348	1.60	13356	18.5	1453	1570	4.8	0.32	1030	186	250	553	13.2	297	307	73.2	5.5
239	800	50000	5348	1.60	13356	18.5	1440	1590	4.8	0.32	1030	173	249	581	13.1	292	282	72.5	5.6
239	815	50000	5348	1.60	13356	18.5	1440	1500	4.8	0.32	1030	165	252	610	13.3	303	276	73.2	5.3
239	830	50000	5348	1.60	13356	18.5	1440	1780	4.8	0.32	1030	169	251	570	13.1	294	276	73.2	6.3
239	845	50000	5348	1.60	13356	18.5	1440	1670	4.8	0.32	1030	171	255	554	13.1	299	279	72.9	5.9
239	900	48000	5134	1.60	13356	18.5	1440	1760	4.8	0.32	1030	182	253	548	13.0	293	293	71.6	6.5
239	915	48000	5134	1.60	13356	18.5	1440	1730	4.8	0.32	1030	184	253	.	.	.	.	.	6.4
239	930	48000	5134	1.60	13356	18.5	1440	1750	4.8	0.32	1030	181	.	.	.	.	.	.	6.5
239	945	48000	5134	1.60	13356	18.5	1440	1720	4.8	0.32	1030	187	.	.	.	.	.	.	6.3

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	STM FLW LB	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
237	1000	50000	5300	1.60	13356	18.5	1470	1600	4.8	0.32	1030	195	.	.	✓	.	.	.	6.0
237	1015	50000	5300	1.63	13356	18.5	1470	1690	4.8	0.32	1030	198	.	.	✓	.	.	.	5.3
237	1030	53000	5300	1.60	13356	18.5	1470	1740	4.8	C.32	1030	205	.	.	.	.	.	.	6.2
237	1045	[illegible]	5300	1.63	13356	19.5	1470	1740	4.5	0.32	1030	208	.	.	.	.	.	.	6.2
237	1100	48100	5130	1.60	13356	19.0	1480	1700	4.5	0.33	1030	211	.	.	.	.	.	.	6.3
[illegible]	1115	[illegible]	5130	1.63	13356	19.0	1483	1730	4.5	0.33	1030	.	.	.	.	.	.	.	5.3
237	1130	48600	5130	1.63	13356	19.0	1465	1810	4.5	0.33	1030	.	.	458	12.6	.	.	.	6.7
237	1145	[illegible]	5130	1.63	13356	19.0	1483	1800	4.8	0.33	1030	.	286	471	12/1	297	.	.	5.6
237	1200	50000	5300	1.63	13356	19.0	1483	1630	4.8	0.33	1030	.	283	479	12.1	294	.	.	5.8
237	1215	[illegible]	5300	1.63	13356	19.0	1480	1610	4.8	0.33	1030	.	283	493	12.2	297	.	.	5.7
237	1230	[illegible]	5301	1.63	13356	19.0	1463	1650	4.8	0.33	1030	.	281	491	12.3	299	.	.	6.0
237	1245	50200	5300	1.63	13356	19.0	1483	1670	4.5	0.33	1030	.	275	492	12.4	296	.	.	5.9
237	1300	[illegible]	5303	1.53	13356	19.0	1463	.	4.5	0.33	1330	.	273	483	12.2	287	.	.	.
237	1315	50000	5300	1.53	13356	19.0	1463	.	4.5	0.33	1330	.	275	474	12.2	269	.	.	.
237	1330	50000	5303	1.53	13356	19.0	1463	.	4.5	0.33	1030	.	277	483	12.2	291	.	.	.
237	1345	50000	5300	1.60	13356	19.0	1483	1700	4.8	0.33	1030	197	277	484	12.3	294	291	71.7	6.0
237	1400	50000	5300	1.60	13356	18.7	1465	1670	5.0	0.31	1030	189	276	483	12.1	286	273	73.5	5.9
237	1415	50000	5300	1.63	13356	18.7	1465	1750	5.0	0.31	1030	190	271	497	12.1	281	275	73.3	6.2
237	1430	50000	5300	1.63	13356	18.7	1465	1930	5.0	0.31	1030	199	272	506	12.0	279	284	72.4	6.8
237	1445	50000	5300	1.60	13356	18.7	1465	1860	5.0	0.31	1030	196	271	516	12.1	281	283	72.5	6.6
237	1500	50000	5300	1.60	13356	19.7	1490	1700	4.8	0.33	1030	197	274	530	12.0	281	282	72.7	6.0
237	1515	53000	5300	1.60	13356	19.7	1493	1530	4.5	0.33	1030	203	276	492	11.9	280	287	72.1	5.4
237	1530	50000	5300	1.63	13356	16.7	1493	1540	4.3	0.33	1030	202	284	477	11.9	289	285	72.3	5.8
[illegible]	1545	[illegible]	5300	1.60	13356	18.7	1490	1650	4.5	0.33	1030	194	289	452	11.7	287	268	74.0	5.8
237	1600	52000	5562	1.60	13356	18.7	1490	1560	4.8	0.33	1030	200	292	446	11.4	281	268	74.0	5.3
237	1615	52000	5562	1.63	13356	18.7	1490	1470	4.8	0.33	1030	200	295	448	11.3	281	265	74.3	5.3
237	1630	52000	5562	1.60	13356	18.7	1493	1540	4.5	0.33	1030	197	290	464	11.2	273	258	74.9	5.2
237	1645	52000	5562	1.60	13356	18.7	1490	1610	4.8	0.33	1030	191	292	469	11.3	278	253	75.4	5.5
237	1700	50000	5300	1.60	13356	17.5	1480	1620	4.6	0.31	1030	192	288	471	11.2	271	252	75.6	5.7
237	1715	50000	5300	1.60	13356	17.5	1480	1620	4.5	0.31	1030	191	286	481	11.0	264	245	76.2	5.7
237	1730	50000	5300	1.60	13356	17.5	1480	1630	4.6	0.31	1030	194	287	477	10.9	262	247	76.0	5.8
237	1745	53000	5300	1.63	13356	17.5	1483	1620	4.5	0.31	1030	195	283	472	11.2	266	256	75.2	5.7
237	1800	50000	5300	1.60	13356	19.0	1480	1560	4.6	0.34	1030	200	276	492	11.3	263	265	74.3	5.5
237	1815	50000	5300	1.60	13356	19.0	1483	1650	4.5	0.34	1030	193	279	498	10.9	255	245	76.2	5.8
237	1830	50000	5300	1.60	13356	19.0	1480	.	4.6	0.34	1330	193	283	503	10.8	256	243	76.4	.
237	1845	50000	5300	1.60	13356	19.0	1483	.	4.6	0.34	1030	193	279	516	10.9	255	245	76.2	.
237	1900	50000	5300	1.60	13356	19.0	1500	.	4.5	0.34	1030	194	281	499	10.6	249	240	76.7	.
237	1915	50000	5300	1.60	13356	19.0	1500	1530	4.6	0.34	1030	211	281	495	10.8	254	266	74.2	5.4
237	1930	50000	5300	1.60	13356	19.0	1500	1520	4.6	0.34	1030	201	287	474	10.7	257	251	75.7	5.4
237	1945	50000	5300	1.60	13356	19.0	1503	1380	4.6	0.34	1030	188	289	461	10.8	261	237	77.0	4.9

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	STM BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
237	2000	52000	5562	1.60	13356	19.0	1493	1470	4.8	0.33	1030	197	291	459	10.4	253	239	76.8	5.0
237	2015	52000	5562	1.60	13356	19.0	1490	1420	4.8	0.33	1030	204	297	458	10.2	254	242	76.5	4.8
237	2030	52100	5562	1.60	13356	19.0	1490	1370	4.8	0.33	1030	209	297	453	10.2	254	248	75.9	4.7
237	2045	52100	5562	1.60	13356	19.0	1490	1350	4.8	0.33	1030	222	297	470	10.4	258	269	73.9	4.6
237	2100	50100	5548	1.60	13356	19.0	1500	1390	4.5	0.34	1030	215	293	467	10.2	253	256	75.2	4.9
237	2115	51000	5548	1.60	13356	19.3	1500	1460	4.6	0.34	1030	221	291	490	10.1	245	260	74.7	5.2
237	2130	50000	5548	1.60	13356	18.0	1503	1460	4.5	0.34	1030	221	291	506	10.2	248	263	74.5	5.2
237	2145	50100	5548	1.60	13356	19.0	1500	1460	4.5	0.34	1030	223	286	525	10.2	244	265	74.3	5.2
237	2200	52100	5548	1.60	13356	19.0	1490	1340	4.6	0.34	1030	226	285	520	10.1	241	266	74.2	4.7
237	2215	50100	5548	1.60	13356	19.0	1490	1360	4.6	0.34	1030	231	291	510	9.8	239	265	74.3	4.8
237	2230	50000	5548	1.60	13356	17.3	1493	1460	4.6	0.34	1030	237	295	491	9.8	243	272	73.6	5.2
237	2245	51100	5548	1.60	13356	19.0	1493	1520	4.6	0.34	1030	242	298	462	10.2	254	288	72.1	5.4
237	2300	52000	5562	1.60	13356	19.0	1490	1440	4.6	0.34	1030	238	297	441	10.0	249	278	73.0	4.9
237	2315	52400	5562	1.60	13356	19.0	1493	1470	4.6	0.34	1030	241	297	434	9.9	247	279	72.9	5.0
237	2330	52000	5562	1.60	13356	19.0	1493	1450	4.5	0.34	1030	243	300	427	9.8	247	278	73.0	4.3
237	2345	52000	5562	1.60	13356	19.0	1490	1370	4.6	0.34	1030	255	297	478	9.8	244	292	71.6	4.7

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

TEST	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	S.P.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	19.8	1500	1320	4.6	0.34	1030	248	301	463	9.6	243	279	72.9	4.5
[illegible]	15	[illegible]	[illegible]	[illegible]	[illegible]	19.8	1503	1310	4.6	0.34	1030	254	305	466	9.6	247	286	72.2	4.5
[illegible]	30	[illegible]	[illegible]	[illegible]	[illegible]	19.8	1503	1230	4.6	0.34	1030	240	306	467	9.9	245	268	74.0	4.2
[illegible]	45	[illegible]	[illegible]	[illegible]	[illegible]	19.8	1500	1270	4.6	0.34	1030	232	307	459	9.5	246	259	74.9	4.3
[illegible]	100	[illegible]	[illegible]	[illegible]	[illegible]	19.8	1493	1300	4.6	0.34	1030	236	305	446	9.4	242	261	74.7	4.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19.8	1490	1250	4.6	0.34	1030	243	302	488	9.6	244	274	73.4	4.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19.8	1490	1250	4.6	0.34	1030	235	299	501	9.6	242	265	74.3	4.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19.8	1490	1280	4.6	0.34	1030	238	293	509	9.5	235	266	74.2	4.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19.8	1480	1290	4.6	0.34	1030	243	290	506	9.6	234	274	73.4	4.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19.8	1480	1320	4.6	0.34	1030	254	280	509	9.6	225	286	72.2	4.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19.8	1480	1330	4.6	0.34	1030	246	278	530	9.7	227	279	72.9	4.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19.3	1482	1320	4.6	0.34	1030	224	273	553	9.8	230	261	74.6	4.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	1500	1360	4.5	0.37	1030	211	282	521	9.5	226	235	77.1	4.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	1503	1440	4.5	0.37	1033	200	233	536	9.4	222	221	78.5	4.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	1510	1290	4.5	0.37	1030	197	278	533	9.3	219	216	79.0	4.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	1500	1380	4.5	0.37	1030	204	277	570	9.3	218	224	78.3	4.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	1473	1330	4.5	0.37	1033	205	284	573	9.0	218	219	78.7	4.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	1470	1310	4.5	0.37	1030	204	294	547	8.7	223	213	79.4	4.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	1470	1480	4.5	0.37	1030	211	293	568	8.7	219	220	78.6	5.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	1473	1470	4.6	0.37	1030	205	292	540	8.9	222	217	73.9	5.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	1490	1430	4.6	0.37	1030	261	297	527	8.8	224	211	79.5	4.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	1490	1280	4.6	0.37	1030	209	299	493	8.7	224	210	78.8	4.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	1490	.	4.6	0.37	1030	202	303	501	8.7	227	211	79.6	.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.5	1493	.	4.6	0.37	1030	217	303	.	8.7	227	226	78.0	.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.8	1463	.	4.4	0.39	1030	234	303	.	8.5	223	240	76.7	.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.0	1463	1390	4.4	0.39	1030	220	301	.	8.3	213	217	78.9	4.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.0	1463	1390	4.4	0.39	1030	216	314	.	8.2	225	216	79.0	4.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.0	1463	.	4.4	0.39	1030	197	304	.	8.5	224	202	80.4	.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.0	1438	.	4.5	0.39	1030	192	296	.	8.2	213	192	81.3	.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.0	1438	.	4.5	0.39	1030	177	296	.	8.1	211	176	82.9	.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.0	1438	1420	4.5	0.39	1030	179	303	.	8.8	215	176	82.9	4.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.0	1438	1330	4.5	0.39	1030	183	.	.	8.4	.	186	81.3	4.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.5	1500	1370	4.5	0.40	1030	213	.	.	8.6	.	220	78.6	4.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.5	1500	1450	4.5	0.40	1030	215	.	.	9.3	.	236	77.1	4.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.5	1500	1520	4.5	0.40	1030	176	.	.	.	.	.	.	4.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.5	1515	1560	4.5	0.42	1030	178	.	.	.	.	.	.	5.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.5	1460	1500	4.4	0.41	1030	187	.	.	.	.	.	.	5.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.5	1460	1380	4.4	0.41	1030	195	.	.	.	.	.	.	4.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.5	1460	1340	4.4	0.41	1030	157	.	.	.	.	.	.	4.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.5	1460	1420	4.4	0.41	1030	152	.	501	.	.	.	.	4.8

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

10 MIN. DATA

[illegible]	[illegible]	[illegible]	COAL FEED	SULFUR %	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	U.P.	RES. TIME	E SQR	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	143	294	489	9.2	230	155	84.9	5.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	.	295	508	9.4	234	.	.	4.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	.	289	531	9.4	233	.	.	4.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	.	285	510	9.5	228	.	.	4.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	.	291	464	9.6	235	.	.	4.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	.	292	456	9.6	236	.	.	4.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	.	291	459	9.7	237	.	.	4.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	182	294	453	9.6	238	205	80.1	5.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	176	295	443	9.6	238	198	80.8	4.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	179	295	442	9.8	243	205	80.1	4.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	168	297	452	9.7	244	191	81.5	4.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	153	296	479	9.6	239	172	83.3	4.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	142	295	484	9.6	238	160	84.5	4.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	146	300	479	9.7	245	166	83.9	4.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	148	298	487	9.6	241	167	83.8	4.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	167	303	461	9.3	239	183	82.2	4.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	172	310	453	9.4	246	198	81.5	4.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	185	310	435	9.3	244	203	83.3	4.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	195	311	460	9.2	243	212	79.4	4.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	185	310	457	9.1	240	199	80.6	4.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	179	306	446	9.2	233	195	81.1	4.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	166	310	464	9.1	240	179	82.6	4.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	176	316	464	8.9	239	187	81.9	3.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	176	314	466	8.9	239	187	81.9	4.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	166	314	460	9.0	241	177	82.8	4.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	160	313	460	9.1	242	181	82.4	4.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	160	313	456	9.0	240	192	81.3	4.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	164	.	.	.	.	.	.	3.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	190	.	.	.	.	.	.	3.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	209	.	456	.	.	.	.	3.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	205	313	426	.	.	.	.	3.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	213	312	447	9.3	246	234	77.3	3.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	215	311	436	9.4	247	238	76.9	3.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	201	312	447	9.3	246	228	78.6	4.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	.	314	393	9.4	249	.	.	4.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	.	313	381	9.1	242	.	.	3.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	.	319	389	9.2	249	.	.	3.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	.	312	428	9.4	248	.	.	3.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	.	313	444	9.2	244	.	.	3.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.41	1030	208	312	431	9.2	244	226	78.0	3.8

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

[illegible]

DAY	HOUR	TOT BLR LB	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOx	E SO2	EFF %	CA/S
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	22.0	1500	1100	4.5	0.41	1030	201	308	477	9.1	243	228	78.6	3.7
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	22.0	1500	1130	4.5	0.41	1030	187	301	482	9.3	237	205	80.1	3.7
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	22.0	1500	1300	4.5	0.41	1030	188	302	448	9.3	230	206	80.0	4.3
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	22.0	1503	1230	4.5	0.41	1030	213	299	459	9.3	235	234	77.3	4.4
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	22.0	1493	1270	4.5	0.41	1030	175	351	462	9.6	239	188	81.7	4.2
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	22.0	1490	1300	4.5	0.41	1030	175	308	484	9.5	240	195	81.0	4.3
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	22.0	1490	1270	4.5	0.41	1030	196	301	506	9.5	241	219	78.8	4.2
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	22.0	1490	1220	4.5	0.41	1030	217	303	479	9.4	241	240	76.7	4.0
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	[illegible]	1470	1290	4.6	0.37	1030	216	310	429	9.3	244	237	77.0	4.2
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	[illegible]	1470	1270	4.6	0.37	1030	218	309	458	9.6	250	245	76.2	4.2
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	[illegible]	1470	1210	4.5	0.37	1030	216	309	441	9.3	243	237	77.0	4.0
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	[illegible]	1471	1220	4.6	0.37	1030	225	307	476	9.2	240	245	76.3	4.3
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	[illegible]	1470	1320	4.5	0.37	1030	203	311	483	9.2	243	221	78.6	4.5
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	[illegible]	1470	1150	4.6	0.37	1030	194	307	519	9.4	244	215	79.2	3.9
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	[illegible]	1470	1190	4.6	0.37	1030	208	302	499	9.3	238	219	78.7	3.9
[illegible]	[illegible]	[illegible]	[illegible]	1.68	[illegible]	[illegible]	1470	1200	4.6	0.37	1030	195	302	531	9.4	240	216	79.1	4.1

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR %	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SCR	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
[illegible]	0	[illegible]	[illegible]	1.96	13130	21.5	1450	1220	4.5	0.40	956	170	301	533	9.3	241	193	80.2	4.7
[illegible]	15	[illegible]	[illegible]	1.96	13130	21.5	1450	1180	4.5	0.40	956	190	292	576	9.3	234	212	77.0	4.5
[illegible]	30	[illegible]	[illegible]	1.96	13130	21.5	1453	1120	4.5	0.40	956	196	290	549	9.3	232	219	77.1	4.3
[illegible]	45	[illegible]	[illegible]	1.96	13130	21.5	1450	1210	4.5	0.40	956	194	296	542	9.4	239	218	77.2	4.6
[illegible]	100	[illegible]	[illegible]	1.96	13130	21.5	1490	1180	4.5	0.40	956	169	292	563	9.3	234	188	80.3	4.8
[illegible]	115	[illegible]	[illegible]	1.96	13130	21.5	1490	1050	4.5	0.40	956	175	299	534	9.4	242	197	79.4	3.9
[illegible]	130	[illegible]	[illegible]	1.96	13130	21.5	1490	1180	4.5	0.40	956	172	307	498	9.2	244	190	80.1	4.3
[illegible]	145	[illegible]	[illegible]	1.96	13130	21.5	1490	.	4.5	0.40	956	174	308	456	9.1	243	191	80.0	.
[illegible]	200	[illegible]	[illegible]	1.96	13130	21.5	1463	.	4.5	0.40	956	187	303	438	9.2	243	207	78.4	.
[illegible]	215	[illegible]	[illegible]	1.96	13130	21.5	1460	1160	4.5	0.40	956	190	305	461	9.2	242	219	77.1	4.4
[illegible]	230	[illegible]	[illegible]	1.96	13130	21.5	1463	1130	4.5	0.40	956	185	299	502	9.3	239	206	78.4	4.3
[illegible]	245	[illegible]	[illegible]	1.96	13130	21.5	1463	1230	4.5	0.40	956	183	297	507	9.3	238	224	78.7	4.6
[illegible]	300	[illegible]	[illegible]	1.96	13130	21.5	1477	1320	4.5	0.40	956	191	292	516	9.4	235	215	77.5	5.3
[illegible]	315	[illegible]	[illegible]	1.96	13130	21.5	1450	1290	4.5	0.40	956	178	288	530	9.4	233	203	79.1	4.9
[illegible]	330	[illegible]	[illegible]	1.96	13130	21.5	1450	1270	4.5	0.40	956	180	293	536	9.3	236	204	78.6	4.8
[illegible]	345	[illegible]	[illegible]	1.96	13130	21.5	1450	1270	4.5	0.40	956	176	284	552	9.7	236	203	78.7	4.8
[illegible]	400	[illegible]	[illegible]	1.96	13130	21.5	1423	1180	4.5	0.40	956	187	278	578	9.7	231	216	77.4	4.7
[illegible]	415	[illegible]	[illegible]	1.96	13130	21.5	1423	1250	4.5	0.40	956	182	271	571	9.6	223	208	78.2	5.0
[illegible]	430	[illegible]	[illegible]	1.96	13130	21.5	1423	1360	4.5	0.40	956	189	268	562	9.6	221	216	77.4	5.4
[illegible]	445	[illegible]	[illegible]	1.96	13130	21.5	1423	1070	4.5	0.40	956	190	269	586	9.8	225	221	76.0	5.8
[illegible]	500	[illegible]	[illegible]	1.96	13130	21.5	1490	1463	4.6	0.39	956	183	276	627	9.4	218	206	78.5	5.4
[illegible]	515	[illegible]	[illegible]	1.96	13130	21.5	1492	1440	4.5	0.39	956	164	294	594	8.9	228	177	81.5	5.3
[illegible]	530	[illegible]	[illegible]	1.96	13130	21.5	1490	1450	4.6	0.39	956	175	310	521	8.8	230	187	83.4	5.3
[illegible]	545	[illegible]	[illegible]	1.96	13130	21.5	1490	1483	4.6	0.39	956	173	307	465	9.1	242	193	80.2	5.4
[illegible]	600	[illegible]	[illegible]	1.96	13130	22.0	1435	1503	4.5	0.41	956	190	300	486	9.1	236	208	78.2	5.3
[illegible]	615	[illegible]	[illegible]	1.96	13130	22.0	1435	1498	4.5	0.41	956	181	293	537	9.2	235	208	79.1	5.3
[illegible]	630	[illegible]	[illegible]	1.96	13130	22.0	1435	1490	4.5	0.41	956	183	290	552	9.5	236	208	78.3	5.3
[illegible]	645	[illegible]	[illegible]	1.96	13130	22.0	1435	1518	4.5	0.41	956	187	284	561	9.4	229	210	78.0	5.3
[illegible]	700	[illegible]	[illegible]	1.96	13130	22.7	1435	1478	4.5	0.42	956	207	284	601	9.1	224	227	76.3	5.2
[illegible]	715	[illegible]	[illegible]	1.96	13130	22.7	1435	1448	4.5	0.42	956	232	295	598	9.0	231	252	73.6	5.1
[illegible]	730	[illegible]	[illegible]	1.96	13130	22.7	1435	1400	4.5	0.42	956	242	288	563	8.9	223	261	72.7	4.9
[illegible]	745	[illegible]	[illegible]	1.96	13130	22.7	1435	1880	4.2	0.42	956	188	283	560	8.8	211	189	80.3	5.6
[illegible]	800	[illegible]	[illegible]	1.96	13130	24.5	1413	4468	4.8	0.43	956	168	.	.	.	.	.	.	15
[illegible]	815	[illegible]	[illegible]	1.96	13130	24.5	1413	3550	4.8	0.43	956	157	.	.	.	.	.	.	12
[illegible]	830	[illegible]	[illegible]	1.96	13130	24.5	1413	1400	4.8	0.43	956	151	.	.	.	.	.	.	4.8
[illegible]	845	[illegible]	[illegible]	1.96	13130	24.5	1413	1420	4.8	0.43	956	146	.	.	.	.	.	.	4.8
[illegible]	900	[illegible]	[illegible]	1.96	13130	24.5	1463	1250	4.8	0.43	956	157	291	.	.	.	.	.	4.8
[illegible]	915	[illegible]	[illegible]	1.96	13130	24.5	1460	1250	4.8	0.43	956	157	301	791	7.8	213	195	83.8	4.0
[illegible]	930	[illegible]	[illegible]	1.96	13130	24.5	1463	1320	4.8	0.43	956	148	300	710	7.6	210	144	84.9	4.1
[illegible]	945	[illegible]	[illegible]	1.96	13130	24.5	1463	1320	4.8	0.43	956	147	293	681	7.6	208	143	85.0	4.2

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LB	COAL FEED	SULFR %	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
228	1000	60000	7200	3.95	13130	24.3	1452	1290	4.7	0.03	956	.	297	679	7.7	209	.	.	3.5
228	1015	60000	7200	3.96	13130	24.5	1450	1310	4.7	0.03	956	.	298	718	7.8	211	.	.	3.7
228	1030	60000	7200	3.95	13130	24.5	1451	1290	4.7	0.03	956	.	296	684	7.7	208	.	.	3.6
228	1045	60000	7200	3.95	13130	24.3	1450	1280	4.7	0.03	956	.	297	694	7.7	209	.	.	3.6
228	1100	60000	6520	3.96	13130	25.0	1455	1290	4.6	0.03	956	.	291	713	7.8	205	.	.	4.1
228	1115	60000	6520	3.95	13130	25.0	1455	1150	4.6	0.05	956	111	291	704	7.7	205	109	88.6	3.7
228	1130	60000	6520	3.96	13130	25.0	1455	1260	4.6	0.05	956	134	293	715	7.7	206	102	89.3	4.1
228	1145	60000	6520	3.95	13130	25.3	1455	1330	4.5	0.05	956	135	292	726	7.6	204	102	87.3	4.2
228	1200	60000	6520	3.95	13130	25.3	1445	1270	4.5	0.06	956	129	291	731	7.6	201	124	86.7	4.3
228	1215	60000	6520	3.95	13130	25.7	1445	1230	4.5	0.06	956	109	304	695	8.1	221	119	88.5	3.8
228	1230	60000	6520	3.95	13130	25.3	1445	1170	4.5	0.06	956	105	299	741	8.4	222	107	88.6	3.8
228	1245	60000	6520	3.95	13130	25.3	1445	1250	4.5	0.06	956	104	293	750	8.2	214	106	88.9	4.0
228	1300	58000	6511	3.95	13130	25.3	1425	990	4.5	0.06	956	104	285	759	.	.	.	.	3.3
228	1315	58000	6511	3.95	13130	25.3	1425	870	4.5	0.06	956	120	313	705	.	.	.	.	2.9
228	1330	58000	6511	3.95	13130	25.3	1425	710	4.5	0.06	956	124	269	703	.	.	.	.	2.4
228	1345	58000	6511	3.95	13130	25.3	1423	620	4.5	0.06	956	124	301	715	.	.	.	.	2.7
228	1400	58000	6511	3.95	13130	24.3	1423	710	4.5	0.05	956	113	.	737	.	.	.	.	3.1
228	1415	58000	6511	3.95	13130	24.3	1423	870	4.3	0.05	956	101	296	.	.	.	.	.	3.2
228	1430	58000	6511	3.95	13130	24.3	1423	1050	4.3	0.05	956	95	295	.	.	.	.	.	3.3
228	1445	58000	6511	3.95	13130	24.3	1423	.	4.3	0.05	956	86	294	.	/	.	.	.	.
228	1500	58000	6893	3.95	13130	24.3	1443	.	4.8	0.01	956	87	.	.	.	.	.	.	.
228	1515	58000	6893	3.96	13130	24.3	1443	990	4.8	0.01	956	100	292	713	8.1	212	109	88.6	3.4
228	1530	58000	6893	3.95	13130	24.3	1447	1330	4.8	0.01	956	97	290	704	7.9	207	97	93.9	3.3
228	1545	58000	6893	3.96	13130	24.3	1442	1070	4.8	0.01	956	97	295	755	8.3	212	97	93.9	3.5
228	1600	52000	5650	3.96	13130	22.7	1423	700	4.5	0.02	956	.	291	676	8.0	223	.	.	3.6
228	1615	52000	5650	3.96	13130	22.7	1423	880	4.5	0.02	956	.	295	562	8.5	222	.	.	3.2
228	1630	52000	5650	3.96	13130	22.7	1423	910	4.5	0.02	956	.	311	625	7.7	219	.	.	3.3
228	1645	52000	5650	3.95	13130	22.7	1423	920	4.5	0.02	956	.	323	507	8.9	252	.	.	3.9
228	1700	58000	6511	3.95	13130	23.8	1443	870	4.6	0.01	956	.	.	715	8.9	.	.	.	2.9
228	1715	58000	6511	3.95	13130	23.8	1443	850	4.6	0.01	956	.	.	.	.	.	.	.	2.8
228	1730	58000	6511	3.96	13130	23.0	1440	.	4.6	0.01	956	.	.	.	.	.	.	.	.
228	1745	58000	6511	3.96	13130	23.3	1440	.	4.6	0.01	956	.	.	.	.	.	.	.	.
228	1800	58000	6511	3.95	13130	23.8	1430	.	4.5	0.03	956	.	.	.	.	.	.	.	.
228	1815	58000	6511	3.96	13130	23.8	1430	880	4.5	0.03	956	.	.	.	.	.	.	.	2.9
228	1830	58000	6511	3.96	13130	23.8	1432	870	4.5	0.03	956	.	.	.	.	.	.	.	2.9
228	1845	58000	6511	3.95	13130	23.3	1433	810	4.5	0.03	956	.	.	.	.	.	.	.	2.7
228	1900	58000	6511	3.95	13130	22.7	1445	770	4.6	0.01	956	.	.	.	.	.	.	.	2.3
228	1915	58000	6511	3.95	13130	22.7	1445	710	4.6	0.01	956	.	.	.	.	.	.	.	2.3
228	1930	58000	6511	3.96	13130	22.7	1445	710	4.6	0.01	956	.	.	784	9.2	.	.	.	2.3
228	1945	58000	6511	3.96	13130	22.7	1445	790	4.6	0.01	956	.	279	801	8.9	216	.	.	2.6

TABLA A-1 (continued)

[illegible] EMISSIONS SUMMARY

[illegible]

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
240	0	54000	5862	1.67	13150	23.5	1470	1110	4.5	0.44	1091	105	277	728	9.7	229	121	88.9	3.4
240	15	54000	5862	1.67	13150	23.5	1470	1060	4.5	0.44	1091	136	277	697	9.9	233	150	85.4	3.3
240	30	54000	5862	1.67	13150	23.5	1470	1140	4.5	0.44	1091	197	275	704	9.9	232	231	78.8	3.5
240	45	54000	5862	1.67	13160	23.5	1470	980	4.5	0.44	1091	186	277	727	9.9	233	218	80.0	3.0
240	100	50000	5428	1.67	13150	23.0	1430	930	4.5	0.43	1091	103	274	697	10.1	235	123	88.7	3.1
240	115	50000	5428	1.67	13150	23.0	1430	1000	4.5	0.43	1091	140	274	740	10.2	237	169	84.5	3.3
240	130	50000	5428	1.67	13150	23.0	1430	1000	4.5	0.43	1091	226	273	697	10.4	241	278	74.5	3.3
240	145	50000	5428	1.67	13150	23.0	1430	.	4.5	0.43	1091	213	274	727	10.6	247	267	75.5	.
240	200	50000	5428	1.67	13150	22.0	1460	870	4.2	0.44	1091	163	280	721	11.0	262	213	83.5	2.9
240	215	50000	5428	1.67	13150	22.0	1460	940	4.2	0.44	1091	154	290	740	10.7	264	195	82.1	3.1
240	230	50000	5428	1.67	13160	22.0	1460	920	4.2	0.44	1091	161	289	663	10.6	260	202	81.5	3.1
240	245	50000	5428	1.67	13150	22.0	1460	920	4.2	0.44	1091	161	291	630	10.4	257	198	81.9	3.1
240	300	50000	5428	1.67	13150	22.0	1430	960	4.2	0.44	1091	156	285	658	10.3	249	190	82.6	3.2
240	315	50000	5428	1.67	13160	22.0	1430	1010	4.2	0.44	1091	156	281	680	10.7	255	197	81.9	3.4
240	330	50000	5428	1.67	13160	22.0	1430	1010	4.2	0.44	1091	142	278	706	10.6	250	178	83.7	3.4
240	345	50000	5428	1.67	13150	22.0	1430	1020	4.2	0.44	1091	132	275	718	10.7	250	167	84.7	3.4
240	400	54000	5862	1.67	13150	23.0	1453	1000	4.2	0.46	1091	115	270	762	10.8	248	147	86.5	3.1
240	415	54000	5862	1.67	13150	23.0	1453	1010	4.2	0.46	1091	125	273	732	10.5	243	155	85.8	3.1
240	430	54000	5862	1.67	13150	23.0	1450	1140	4.2	0.46	1091	121	266	759	10.2	230	146	86.6	3.5
240	445	54000	5862	1.67	13150	23.0	1450	1240	4.2	0.46	1091	133	262	797	10.0	223	158	85.6	3.8
240	500	52000	5645	1.67	13150	23.0	1450	1300	4.3	0.44	1091	141	269	758	10.4	237	173	84.1	4.2
240	515	52000	5645	1.67	13150	23.0	1450	1290	4.3	0.44	1091	142	273	688	11.0	255	185	83.0	4.1
240	530	52000	5645	1.67	13150	23.0	1450	1220	4.3	0.44	1091	143	271	677	11.4	264	194	82.2	3.9
240	545	52000	5645	1.67	13150	23.0	1450	1260	4.3	0.44	1091	127	256	719	11.2	245	169	84.5	4.1
240	600	59000	6405	1.67	13160	23.0	1453	1290	4.5	0.43	1091	132	261	722	10.7	237	167	84.7	3.7
240	615	59000	6405	1.67	13150	23.0	1453	1200	4.5	0.43	1091	162	265	738	10.4	234	199	81.7	3.4
240	630	59000	6405	1.67	13150	23.0	1453	1100	4.5	0.43	1091	190	268	742	10.1	230	227	73.2	3.1
240	645	59000	6405	1.67	13150	23.0	1453	1100	4.5	0.43	1091	193	262	760	10.1	225	231	78.9	3.1
240	700	59000	6405	1.67	13160	22.7	1453	1170	4.5	0.42	1091	164	272	730	10.5	242	204	81.3	3.3
240	715	59000	6405	1.67	13160	22.7	1450	1110	4.5	0.42	1091	124	270	749	10.7	243	157	85.6	3.1
240	730	59000	6405	1.67	13160	22.7	1450	1120	4.5	0.42	1091	110	.	.	.	.	.	.	3.2
240	745	59000	6405	1.67	13150	22.7	1450	1170	4.5	0.42	1091	117	.	.	.	.	.	.	3.3
240	800	62000	6730	1.67	13150	23.5	1450	1130	4.5	0.43	1091	148	.	.	.	.	.	.	3.0
240	815	62000	6730	1.67	13150	23.5	1450	1110	4.5	0.43	1091	162	.	.	.	.	.	.	3.0
240	830	62000	6730	1.67	13150	23.5	1450	1150	4.5	0.43	1091	210	269	755	.	.	.	.	3.1
240	845	62000	6730	1.67	13160	23.5	1450	1110	4.5	0.43	1091	225	276	731	9.9	233	264	75.8	3.0
240	900	60000	6567	1.93	13052	23.5	1463	1020	4.5	0.43	1271	174	275	730	10.0	237	208	83.7	2.4
240	915	60000	6567	1.93	13052	23.5	1463	1080	4.5	0.43	1271	140	265	733	9.8	223	164	87.1	2.6
240	930	60000	6567	1.93	13052	23.5	1463	1210	4.5	0.43	1271	.	264	767	9.5	216	.	.	2.9
240	945	60000	6567	1.93	13052	23.5	1463	.	4.5	0.43	1271	.	267	715	9.8	225	.	.	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
240	1000	60000	6442	1.62	13306	24.5	1430	.	4.5	0.45	1047	.	265	742	10.8	223	.	.	.
240	1015	60000	6442	1.62	13306	24.5	1430	1190	4.5	0.45	1047	.	263	824	9.9	219	.	.	3.5
240	1030	60000	6442	1.62	13306	24.5	1430	1200	4.5	0.45	1047	.	255	918	10.0	214	.	.	3.5
240	1045	60000	6442	1.62	13306	24.5	1430	1150	4.5	0.45	1047	200	256	809	10.3	221	241	77.0	3.3
240	1100	58000	6362	2.29	13023	23.7	1410	950	4.5	0.44	1512	157	262	765	9.7	219	183	87.9	2.3
240	1115	58000	6362	2.29	13023	23.7	1410	980	4.5	0.44	1512	151	286	668	9.3	244	179	88.2	2.3
240	1130	58000	6362	2.29	13023	23.7	1410	1050	4.5	0.44	1512	204	284	695	10.2	249	249	83.6	2.2
240	1145	58000	6362	2.29	13023	23.7	1410	1050	4.5	0.44	1512	199	282	732	10.4	252	247	83.6	2.2
240	1200	58000	6362	2.29	13023	23.5	1453	1020	4.5	0.44	1512	195	274	780	10.7	252	249	83.5	2.1
240	1215	58000	6362	2.29	13023	23.5	1453	930	4.5	0.44	1512	160	274	742	10.8	254	207	85.3	1.9
240	1230	58000	6362	2.29	13023	23.5	1453	980	4.5	0.44	1512	176	268	742	10.9	251	230	84.8	2.0
240	1245	58000	6362	2.29	13023	23.5	1453	1100	4.5	0.44	1512	132	270	733	10.7	248	169	88.8	2.3
240	1300	58000	6137	1.45	13502	21.7	1433	1090	4.5	0.40	923	126	275	673	10.2	232	148	84.0	3.7
240	1315	58000	6137	1.45	13502	21.7	1433	1080	4.5	0.40	923	145	287	679	10.4	247	174	81.2	3.7
240	1330	58000	6137	1.45	13502	21.7	1433	1020	4.5	0.40	923	100	265	662	10.4	245	120	87.0	3.5
240	1345	58000	6137	1.45	13502	21.7	1433	1120	4.5	0.40	923	100	289	641	10.6	254	122	86.8	3.9
240	1400	56000	6179	1.59	12947	21.2	1510	1160	4.8	0.37	1056	96	295	608	10.7	273	123	88.3	3.6
240	1415	56000	6179	1.59	12947	21.2	1510	1110	4.8	0.37	1056	81	298	571	10.3	265	100	90.5	3.4
240	1430	56000	6179	1.59	12947	21.2	1510	1260	4.8	0.37	1056	85	300	615	10.1	262	103	90.2	3.9
240	1445	56000	6179	1.59	12947	21.2	1510	1100	4.8	0.37	1056	95	297	577	10.1	259	115	89.1	3.4
240	1500	58000	6356	1.50	13037	21.0	1540	970	4.9	0.36	989	113	297	588	10.1	257	136	85.2	3.1
240	1515	58000	6355	1.50	13037	21.0	1540	1130	4.8	0.36	989	110	298	589	10.0	256	131	85.7	3.5
240	1530	58000	6356	1.50	13037	21.0	1540	1080	4.8	0.36	989	101	294	582	9.9	250	120	87.9	3.4
240	1545	58000	6356	1.50	13037	21.0	1540	1050	4.3	0.35	989	89	293	631	9.9	249	105	89.3	3.3
240	1600	58000	6208	1.52	13346	19.5	1550	1080	5.2	0.31	979	85	296	652	9.9	246	98	90.0	3.5
240	1615	58000	6208	1.52	13346	19.5	1550	1050	5.2	0.31	979	91	299	579	9.5	240	102	89.6	3.4
240	1630	58000	6208	1.52	13346	19.5	1550	1150	5.2	0.31	979	99	311	492	10.0	261	116	88.2	3.7
240	1645	58000	6208	1.52	13346	19.5	1550	1100	5.2	0.31	979	115	315	479	9.8	260	132	85.5	3.5
240	1700	56000	6287	1.80	12725	19.5	1535	980	5.0	0.32	1216	146	315	445	10.3	283	184	84.9	2.6
240	1715	56000	6287	1.80	12725	19.5	1535	1110	5.0	0.32	1216	137	320	462	10.4	292	174	85.7	3.0
240	1730	56000	6287	1.80	12725	19.5	1535	1080	5.0	0.32	1216	146	323	461	10.3	292	184	84.9	2.9
240	1745	56000	6287	1.80	12725	19.5	1535	1080	5.0	0.32	1216	172	321	482	10.6	299	223	81.7	2.9
240	1600	54000	5778	1.42	13351	19.5	1520	.	5.0	0.32	914	212	322	474	10.3	279	254	72.2	.
240	1815	54000	5778	1.42	13351	19.5	1520	.	5.0	0.32	914	203	306	483	10.6	271	251	72.6	.
240	1830	54000	5778	1.42	13351	19.5	1520	1050	5.0	0.32	914	137	315	489	10.6	280	169	81.5	3.9
240	1845	54000	5778	1.42	13351	19.5	1520	1010	5.0	0.32	914	140	314	463	10.4	273	170	81.4	3.7
240	1900	50000	5365	1.55	13314	18.7	1510	1000	5.0	0.31	1001	127	312	467	10.7	280	159	84.1	3.6
240	1915	50000	5365	1.55	13314	18.7	1510	1030	5.0	0.31	1001	148	314	470	11.1	294	193	80.7	3.8
240	1930	50000	5365	1.55	13314	18.7	1510	930	5.0	0.31	1001	134	311	477	10.7	279	168	83.3	3.4
240	1945	50000	5365	1.55	13314	18.7	1510	970	5.0	0.31	1001	126	309	479	10.4	270	153	84.7	3.5

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
240	2000	50000	5428	1.67	13160	17.7	1500	900	5.0	0.30	1091	119	311	485	10.5	277	148	86.5	3.0
240	2015	50000	5428	1.67	13160	17.7	1500	900	5.0	0.30	1091	126	312	442	10.9	289	163	85.1	3.0
240	2030	50000	5428	1.67	13160	17.7	1500	850	5.0	0.30	1091	126	318	432	11.1	301	166	84.8	2.8
240	2045	50000	5428	1.67	13150	17.7	1500	980	5.0	0.30	1091	123	315	444	11.0	295	160	85.3	3.3
240	2100	50000	5428	1.67	13160	17.0	1520	860	5.2	0.27	1091	112	313	445	11.3	302	151	86.2	2.9
240	2115	50000	5428	1.67	13150	17.0	1520	990	5.2	0.27	1091	96	312	450	11.5	308	132	87.9	3.3
240	2130	50000	5428	1.67	13150	17.0	1520	970	5.2	0.27	1091	105	312	442	11.7	314	147	86.5	2.9
240	2145	50000	5428	1.67	13150	17.0	1520	820	5.2	0.27	1091	118	312	451	11.5	308	162	85.1	2.7
240	2200	.	.	1.67	13160	.	.	720	.	.	1091	114	311	427	11.6	310	158	85.5	.
240	2215	.	.	1.67	13160	.	.	350	.	.	1091	102	.	.	.	.	.	.	.
240	2230	.	.	1.67	13150	.	.	.	.	.	1091	104	.	.	.	.	.	.	.
240	2245	.	.	1.67	13160	.	.	.	.	.	1091	120	.	.	.	.	.	.	.
240	2300	.	.	1.67	13150	.	.	.	.	.	1091	98	.	.	.	.	.	.	.
240	2315	.	.	1.67	13150	.	.	.	.	.	1091	.	.	.	.	.	.	.	.
240	2330	.	.	1.67	13160	.	.	.	.	.	1091	.	.	.	.	.	.	.	.
240	2345	.	.	1.57	13150	.	.	.	.	.	1091	.	.	.	.	.	.	.	.

TABLE A-1 (continued)

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                    GEORGETOWN UNIVERSITY                              EMISSIONS SUMMARY

     15 MIN. DATA

DAY HOUR  TOT       COAL  SULFR HEAT   BED    BED  LIME SUP. RES.   E     SO2  NOX   CO   O2     E    E   EFF  CA/S
          BLR LD    FEED   (%)  BTU   DEPTH  TEMP FEED      TIME  SO2    PPM  PPM   PPM  %     NOX  SO2   %
-----------------------------------------------------------------------------------------------------------------

245    0   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245   15   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245   30   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245   45   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  100   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  115   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  130   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  145   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  200   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  215   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  230   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  245   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  300   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  315   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  330   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  345   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  400   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  415   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  430   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  445   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  500   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  515   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  530   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  545   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  600   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  615   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  630   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  645   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  700   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  715   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  730   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  745   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  800   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  815   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  830   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  845   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  900   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  915   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  930   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
245  945   .          .  1.60 13356    .      .    .    .    .   1030    .    .     .    .     .    .    .    .
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TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
245	1000	.	.	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
245	1015	.	.	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
245	1030	.	.	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
245	1045	.	.	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
245	1100	18000	1925	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
245	1115	18000	1925	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
245	1130	18000	1925	1.60	13356	.	.	.	.	.	1030	.	.	.	.	.	.	.	.
245	1145	18000	1925	1.60	13356	.	.	.	.	.	1030	.	.	619	.	.	.	.	.
245	1200	19000	2032	1.60	13356	.	.	.	.	.	1030	.	180	578	.	.	.	.	.
245	1215	19000	2032	1.60	13356	.	.	.	.	.	1030	.	179	622	.	.	.	.	.
245	1230	19000	2032	1.60	13356	.	.	.	.	.	1030	.	167	650	.	.	.	.	.
245	1245	19000	2032	1.60	13356	.	.	.	.	.	1030	.	183	573	.	.	.	.	.
245	1300	22000	2353	1.60	13356	.	.	.	.	.	1030	.	155	619	.	.	.	.	.
245	1315	22000	2353	1.60	13356	.	.	.	.	.	1030	.	123	698	.	.	.	.	.
245	1330	22000	2353	1.60	13356	.	.	.	.	.	1030	.	131	655	.	.	.	.	.
245	1345	22000	2353	1.60	13356	.	.	.	.	.	1030	.	129	642	.	.	.	.	.
245	1400	28000	2995	1.60	13356	.	.	.	.	.	1030	.	106	678	.	.	.	.	.
245	1415	28000	2995	1.50	13356	.	.	.	.	.	1030	.	96	731	.	.	.	.	.
245	1430	28000	2995	1.60	13356	.	.	.	.	.	1030	.	86	793	15.4	143	.	.	.
245	1445	28000	2995	1.60	13356	.	.	.	.	.	1030	.	75	898	14.8	112	.	.	.
245	1500	60000	6418	1.60	13356	22.5	1375	.	5.3	0.35	1030	.	90	886	14.7	133	.	.	.
245	1515	60000	6418	1.60	13356	22.5	1375	.	5.3	0.35	1030	.	93	898	14.3	129	.	.	.
245	1530	60000	6418	1.60	13356	22.5	1375	.	5.3	0.35	1030	.	80	942	14.2	109	.	.	.
245	1545	60000	6418	1.60	13356	22.5	1375	.	5.3	0.35	1030	.	162	979	14.1	218	.	.	.
245	1600	58000	6204	1.60	13356	21.0	1410	1920	5.1	0.34	1030	.	208	879	12.3	221	.	.	5.9
245	1615	58000	6204	1.60	13356	21.0	1410	1880	5.1	0.34	1030	.	228	973	11.4	219	.	.	5.7
245	1630	58000	6204	1.60	13356	21.0	1410	1870	5.1	0.34	1030	.	229	951	11.5	222	.	.	5.7
245	1645	58000	6204	1.60	13356	21.0	1410	1840	5.1	0.34	1030	.	243	828	11.1	226	.	.	5.6
245	1700	58000	6204	1.60	13356	17.0	1425	1830	5.3	0.26	1030	.	259	697	11.5	252	.	.	5.6
245	1715	58000	6204	1.60	13356	17.0	1425	1720	5.3	0.26	1030	.	270	668	11.7	268	.	.	5.3
245	1730	58000	6204	1.60	13356	17.0	1425	1700	5.3	0.26	1030	.	281	666	11.4	270	.	.	5.2
245	1745	58000	6204	1.58	13356	17.0	1425	3210	5.3	0.25	1030	.	295	619	11.0	272	.	.	9.8
245	1800	58000	6204	1.60	13356	17.0	1445	5570	5.5	0.25	1030	.	296	628	11.8	297	.	.	17
245	1815	58000	6204	1.60	13356	17.0	1445	5130	5.5	0.25	1030	.	297	626	11.8	298	.	.	16
245	1830	58000	6204	1.60	13356	17.0	1445	5080	5.5	0.25	1030	.	296	637	11.8	297	.	.	16
245	1645	58000	6204	1.60	13356	17.0	1445	5980	5.5	0.25	1030	.	296	616	11.4	285	.	.	18
245	1900	50000	5348	1.60	13356	17.2	1420	6380	4.6	0.31	1030	.	290	633	11.9	294	.	.	23
245	1915	50000	5348	1.60	13356	17.2	1420	6680	4.6	0.31	1030	.	289	719	11.7	287	.	.	24
245	1930	50000	5348	1.60	13356	17.2	1420	6900	4.6	0.31	1030	.	302	636	11.2	284	.	.	24
245	1945	50000	5348	1.60	13356	17.2	1420	6710	4.6	0.31	1030	.	282	693	11.6	277	.	.	24

TABLE A-1 (continued)

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                              GEORGETOWN UNIVERSITY                        EMISSIONS SUMMARY

      15 MIN. DATA

DAY HOUR  TOT       COAL  SULFR HEAT  BED    BED  LIME SUP. RES.  E       SO2 NOX   CO   O2     E    E   EFF   CA/S
          BLR LD    FEED   (%)  BTU  DEPTH   TEMP FEED      TIME  SO2     PPM PPM   PPM   %     NOX  SO2  %
-------------------------------------------------------------------------------------------------------------------

245 2000 60000      6418  1.60  13356 20.7   1440 6780 4.6  0.37 1030      .  271   742  12.7  302    .    .    20
245 2015 60000      6418  1.60  13356 20.7   1440 7010 4.6  0.37 1030      .  271   730  12.2  285    .    .    21
245 2030 60000      6418  1.60  13356 20.7   1440 5750 4.6  0.37 1030      .  267   728    .     .    .    .    17
245 2045 60000      6418  1.60  13356 20.7   1440 4110 4.6  0.37 1030      .  269   718    .     .    .    .    12
245 2100 58000      6204  1.60  13356 19.2   1460 1870 4.6  0.34 1030      .  274   706    .     .    .    .   5.7
245 2115 58000      6204  1.60  13356 19.2   1460 1840 4.6  0.34 1030      .  290   672    .     .    .    .   5.6
245 2130 58000      6204  1.60  13356 19.2   1460 1790 4.5  0.34 1030      .  286   638    .     .    .    .   5.5
245 2145 58000      6204  1.60  13356 19.2   1460 1870 4.5  0.34 1030      .  288   626    .     .    .    .   5.7
245 2200 56000      5990  1.60  13356 18.0   1490 2150 4.8  0.31 1030      .  298   573    .     .    .    .   5.9
245 2215 56000      5990  1.60  13356 18.0   1490 2110 4.8  0.31 1030      .  297   534    .     .    .    .   6.7
245 2230 56000      5990  1.60  13356 13.0   1490 2050 4.9  0.31 1030      .  294   520    .     .    .    .   6.5
245 2245 56000      5990  1.60  13356 18.0   1490 1990 4.8  0.31 1030      .  294   531    .     .    .    .   6.3
245 2300 54000      5775  1.60  13356 17.0   1510 2070 4.9  0.30 1030      .  294   510    .     .    .    .   6.8
245 2315 54000      5775  1.60  13336 17.0   1510 2290 4.8  0.30 1030      .  298   498    .     .    .    .   7.5
245 2330 54000      5776  1.60  13356 17.0   1510 2230 4.8  0.30 1030      .  302   474    .     .    .    .   7.3
245 2345 54000      5776  1.60  13356 17.0   1510 2250 4.8  0.30 1030      .  300   472    .     .    .    .   7.4
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TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
246	0	56000	5990	1.60	13356	17.0	1545	2180	4.9	0.29	1030	48	305	463	8.6	225	50	95.2	6.9
246	15	56000	5990	1.60	13356	17.0	1545	2130	4.9	0.29	1030	48	301	450	8.6	224	50	95.2	6.7
246	30	56000	5990	1.60	13356	17.0	1545	2260	4.9	0.29	1030	48	300	463	8.6	223	50	95.2	7.2
246	45	56000	5990	1.60	13356	17.0	1545	2300	4.9	0.29	1030	48	296	461	8.6	220	50	95.2	7.3
246	100	56000	5990	1.60	13356	17.0	1545	2710	4.9	0.29	1030	58	295	467	7.6	203	55	94.6	8.6
246	115	56000	5990	1.60	13356	17.0	1545	2350	4.9	0.29	1030	58	297	456	7.6	204	55	94.6	7.4
246	130	56000	5990	1.60	13356	17.0	1545	2320	4.9	0.29	1030	58	296	476	7.6	203	55	94.6	7.3
246	145	56000	5990	1.60	13356	17.0	1545	2510	4.9	0.29	1030	58	293	484	7.6	201	55	94.6	7.9
246	200	54000	5776	1.60	13356	17.5	1540	2690	4.9	0.29	1030	48	289	477	7.9	203	47	95.4	8.8
246	215	54000	5776	1.60	13356	17.5	1540	2540	4.9	0.29	1030	48	289	459	7.9	203	47	95.4	8.3
246	230	54000	5775	1.60	13356	17.5	1540	2570	4.9	0.29	1030	48	294	426	7.9	207	47	95.4	8.4
246	245	54000	5775	1.60	13356	17.5	1540	2700	4.9	0.29	1030	48	287	427	7.9	202	47	95.4	8.9
246	300	54000	5775	1.60	13356	17.5	1530	2600	4.9	0.29	1030	48	290	430	7.9	204	47	95.4	8.5
246	315	54000	5775	1.60	13356	17.5	1530	2650	4.9	0.29	1030	48	293	404	7.9	205	47	95.4	8.7
246	330	54000	5776	1.60	13356	17.5	1530	.	4.9	0.29	1030	48	286	408	7.9	201	47	95.4	.
246	345	54000	5775	1.60	13356	17.5	1530	.	4.9	0.29	1030	48	289	415	7.9	203	47	95.4	.
246	400	54000	5775	1.60	13356	17.5	1540	2680	4.9	0.29	1030	58	288	413	8.1	205	58	94.4	8.8
246	415	54000	5776	1.60	13356	17.5	1540	2570	4.9	0.29	1030	58	285	413	8.1	203	58	94.4	8.4
246	430	54000	5775	1.60	13356	17.5	1540	2610	4.9	0.29	1030	58	276	452	8.1	197	58	94.4	8.6
246	445	54000	5776	1.60	13356	17.5	1540	2590	4.9	0.29	1030	58	278	432	8.1	198	58	94.4	8.5
246	500	52000	5562	1.60	13356	18.7	1520	2490	4.9	0.32	1030	58	279	446	8.1	199	58	94.4	8.5
246	515	52000	5562	1.60	13356	18.7	1520	2540	4.9	0.32	1030	58	278	445	8.1	198	58	94.4	8.7
246	530	52000	5562	1.60	13356	18.7	1520	2520	4.9	0.32	1030	58	277	423	8.1	198	58	94.4	8.6
246	545	52000	5562	1.60	13356	18.7	1520	2710	4.9	0.32	1030	58	285	433	8.1	203	58	94.4	9.2
246	600	52000	5562	1.60	13356	17.0	1513	2810	4.9	0.29	1030	48	283	414	8.3	205	48	95.3	9.6
246	615	52000	5562	1.60	13356	17.0	1513	2720	4.9	0.29	1030	48	284	420	8.3	206	48	95.3	9.3
246	630	52000	5562	1.60	13356	17.0	1513	2650	4.9	0.29	1030	48	283	384	8.3	205	48	95.3	9.7
246	645	52000	5562	1.60	13356	17.0	1513	2730	4.9	0.29	1030	48	282	388	8.3	204	48	95.3	9.3
246	700	50000	5348	1.60	13356	16.5	1513	2700	4.8	0.29	1030	67	279	425	7.9	196	66	93.6	9.6
246	715	50000	5348	1.60	13356	16.5	1510	2640	4.8	0.29	1030	67	277	431	7.9	195	66	93.6	9.4
246	730	50000	5348	1.60	13356	16.5	1510	2620	4.8	0.29	1030	67	273	425	7.9	192	66	93.6	9.3
246	745	50000	5348	1.60	13356	16.5	1510	2700	4.8	0.29	1030	67	292	463	7.9	205	66	93.6	9.6
246	800	46000	4920	1.60	13356	16.5	1460	2670	4.7	0.29	1030	48	290	466	12.1	301	69	93.3	10
246	815	46000	4920	1.60	13356	16.5	1460	3690	4.7	0.29	1030	48	294	432	12.2	309	70	93.2	14
246	830	46000	4920	1.60	13356	16.5	1460	5050	4.7	0.29	1030	48	290	415	12.3	308	71	93.1	19
246	845	46000	4920	1.60	13356	16.5	1460	5110	4.7	0.29	1030	48	288	434	12.5	313	73	92.9	20
246	900	54000	5776	1.60	13356	17.5	1465	5570	4.6	0.31	1030	58	282	510	12.7	314	90	91.3	18
246	915	54000	5775	1.60	13356	17.5	1465	5500	4.6	0.31	1030	58	286	541	12.3	304	86	91.7	18
246	930	54000	5775	1.60	13356	17.5	1465	3610	4.6	0.31	1030	58	292	580	12.1	303	84	91.9	12
246	945	54000	5775	1.60	13356	17.5	1465	3400	4.6	0.31	1030	58	274	667	12.0	281	83	92.0	11

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
246	1000	50000	5348	1.60	13356	18.5	1420	3690	4.5	0.34	1030	39	283	625	10.7	253	49	95.3	13
246	1015	50000	5348	1.60	13356	18.5	1420	3930	4.5	0.34	1030	39	302	571	11.4	293	52	94.9	14
246	1030	50000	5348	1.60	13356	18.5	1420	4920	4.5	0.34	1030	39	301	589	11.7	299	54	94.8	17
246	1045	50000	5348	1.60	13355	18.5	1420	4440	4.5	0.34	1030	39	304	565	12.0	312	56	94.6	16
246	1100	57000	6097	1.60	13356	18.0	1450	4310	4.8	0.31	1030	58	302	582	12.0	310	83	92.0	13
246	1115	57000	6097	1.60	13356	18.0	1450	3960	4.8	0.31	1030	58	.	556	11.3	.	77	92.5	12
246	1130	57000	6097	1.60	13356	18.0	1450	4580	4.8	0.31	1030	58	.	579	11.1	.	75	92.7	14
246	1145	57000	6097	1.60	13356	18.0	1450	4370	4.8	0.31	1030	58	.	539	11.5	.	78	92.4	14
246	1200	56000	5990	1.60	13356	19.5	1450	4520	4.5	0.34	1030	.	.	555	11.4	.	.	.	14
246	1215	56000	5990	1.60	13356	19.5	1450	4480	4.8	0.34	1030	.	.	.	11.4	.	.	.	14
246	1230	56000	5990	1.60	13356	19.5	1450	5630	4.3	0.34	1030	.	.	.	.	.	.	.	18
246	1245	56000	5990	1.60	13356	19.5	1450	5050	4.8	0.34	1030	.	.	.	.	.	.	.	16
246	1300	58000	6204	1.60	13356	20.0	1465	5030	5.1	0.33	1030	.	.	.	.	.	.	.	15
246	1315	58000	6204	1.60	13356	20.0	1465	5050	5.1	0.33	1030	.	.	.	.	.	.	.	15
246	1330	58000	6204	1.60	13356	20.0	1465	5290	5.1	0.33	1030	.	284	.	.	.	.	.	16
246	1345	58000	6204	1.60	13356	20.0	1465	5640	5.1	0.33	1030	.	103	.	.	.	.	.	17
246	1400	68000	7273	1.60	13356	21.5	1490	4970	5.7	0.31	1030	.	22	.	.	.	.	.	13
246	1415	68000	7273	1.60	13356	21.5	1490	4120	5.7	0.31	1030	.	27	.	.	.	.	.	11
246	1430	66000	7273	1.60	13356	21.5	1490	4870	5.7	0.31	1030	.	88	.	.	.	.	.	13
246	1445	66000	7273	1.60	13356	21.5	1490	4870	5.7	0.31	1030	.	126	.	.	.	.	.	13
246	1500	70000	7487	1.60	13356	23.5	1510	5740	5.3	0.37	1030	48	21	724	8.3	15	48	95.3	15
246	1515	70000	7487	1.60	13356	23.5	1510	7970	5.3	0.37	1030	48	239	724	8.3	173	48	95.3	20
246	1530	70000	7487	1.60	13356	23.5	1510	7330	5.3	0.37	1030	48	317	724	8.3	230	48	95.3	19
246	1545	70000	7487	1.60	13356	23.5	1510	8520	5.3	0.37	1030	48	319	724	8.3	231	48	95.3	22
246	1600	92000	9840	1.60	13356	23.5	1600	6240	5.6	0.35	1030	102	308	106	8.8	233	107	89.6	12
246	1615	92000	9840	1.60	13356	23.5	1600	6250	5.6	0.35	1030	102	293	106	8.8	226	107	89.6	12
246	1630	92000	9840	1.60	13356	23.5	1600	6050	5.6	0.35	1030	102	240	106	8.8	181	107	89.6	12
246	1645	92000	9840	1.60	13356	23.5	1600	4040	5.6	0.35	1030	102	178	106	8.8	134	107	89.6	7.8
246	1700	58000	6204	1.60	13356	23.2	1480	3850	5.0	0.39	1030	67	243	171	7.4	164	63	93.9	12
246	1715	58000	6204	1.60	13356	23.2	1480	.	5.0	0.39	1030	67	214	171	7.4	145	63	93.9	.
246	1730	58000	6204	1.60	13356	23.2	1480	660	5.0	0.39	1030	67	128	171	7.4	87	63	93.9	2.0
246	1745	58000	6204	1.60	13356	23.2	1480	890	5.0	0.39	1030	67	365	171	7.4	247	63	93.9	2.7
246	1800	64000	6846	1.60	13356	20.0	1515	1040	4.8	0.34	1030	12	405	561	8.1	289	12	98.8	2.9
246	1815	64000	6846	1.60	13356	20.0	1515	1120	4.8	0.34	1030	26	397	660	8.1	283	26	97.5	3.1
246	1830	64000	6846	1.60	13356	20.0	1515	1100	4.8	0.34	1030	14	376	759	8.1	268	14	98.6	3.0
246	1845	64000	6845	1.60	13356	20.0	1515	1150	4.8	0.34	1030	54	332	746	8.1	237	54	94.8	3.2
246	1900	54000	5776	1.60	13356	21.0	1400	1130	4.8	0.35	1030	200	333	677	9.1	258	216	79.1	3.7
246	1915	54000	5776	1.60	13356	21.0	1400	1180	4.3	0.35	1030	236	362	548	9.1	283	254	75.3	3.9
246	1930	54000	5775	1.60	13356	21.0	1400	1200	4.8	0.36	1030	88	374	509	9.1	290	95	90.8	3.9
246	1945	54000	5775	1.60	13356	21.0	1400	1240	4.8	0.36	1030	.	375	541	9.1	290	.	.	4.1

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
246	2000	58000	6204	1.60	13356	19.2	1465	1340	4.8	0.33	1030	.	378	561	10.1	320	.	.	4.1
246	2015	58000	6204	1.60	13356	19.2	1465	1370	4.8	0.33	1030	.	373	547	10.1	315	.	.	4.2
246	2030	58000	6204	1.60	13356	19.2	1465	1440	4.8	0.33	1030	3	350	596	10.1	296	4	99.7	4.4
246	2045	58000	6204	1.60	13356	19.2	1465	.	4.8	0.33	1030	37	361	541	10.1	305	44	95.8	.
246	2100	56000	5990	1.60	13356	20.0	1470	.	4.8	0.35	1030	45	364	576	10.1	308	53	94.9	.
246	2115	56000	5990	1.60	13356	20.0	1470	1510	4.8	0.35	1030	79	355	499	10.1	309	93	91.0	4.8
246	2130	56000	5990	1.60	13356	20.0	1470	1360	4.8	0.35	1030	49	364	443	10.1	303	58	94.4	4.3
246	2145	56000	5990	1.60	13356	20.0	1470	1360	4.8	0.35	1030	15	365	419	10.1	309	18	98.3	4.3
246	2200	50000	5348	1.60	13356	21.2	1440	1320	4.2	0.42	1030	22	369	399	12.6	406	34	96.7	4.7
246	2215	50000	5348	1.60	13356	21.2	1440	1500	4.2	0.42	1030	13	374	423	12.6	412	20	98.1	5.3
246	2230	50000	5348	1.60	13356	21.2	1440	1370	4.2	0.42	1030	.	372	464	12.6	409	.	.	4.9
246	2245	50000	5348	1.60	13356	21.2	1440	1360	4.2	0.42	1030	.	374	518	12.6	412	.	.	4.8
246	2300	46000	4920	1.60	13356	21.0	1360	1310	4.2	0.42	1030	10	380	431	11.3	362	13	98.7	5.0
246	2315	46000	4920	1.60	13356	21.0	1360	860	4.2	0.42	1030	1	368	470	11.3	350	1	99.9	3.3
246	2330	46000	4920	1.60	13356	21.0	1360	710	4.2	0.42	1030	39	365	439	11.3	348	52	95.0	2.7
246	2345	46000	4920	1.60	13356	21.0	1360	860	4.2	0.42	1030	14	360	464	11.3	343	19	93.2	3.3

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
247	0	50000	5183	1.78	13782	19.9	1350	1050	4.8	0.35	1110	27	359	458	.	.	.	.	3.5
247	15	50300	5183	1.73	13732	19.9	1350	1060	4.3	0.35	1110	34	368	421	.	.	.	.	3.5
247	30	50000	5183	1.78	13732	19.9	1353	1050	4.8	0.35	1110	3	358	492	.	.	.	.	3.5
247	45	50300	5183	1.78	13732	19.9	1353	1030	4.8	0.35	1110	6	366	491	.	.	.	.	3.4
247	100	45300	4768	1.79	13732	15.5	1393	980	4.8	0.29	1110	13	363	479	.	.	.	.	3.5
247	115	46000	4768	1.78	13792	15.5	1393	920	4.8	0.29	1110	45	362	484	.	.	.	.	3.3
247	130	46000	4768	1.78	13732	15.5	1393	1000	4.8	0.29	1110	124	349	497	.	.	.	.	3.6
247	145	46000	4768	1.78	13782	15.5	1393	860	4.8	0.29	1110	37	358	355	.	.	.	.	3.1
247	200	50000	5183	1.78	13782	14.5	1450	1030	5.1	0.23	1110	2	366	316	.	.	.	.	3.4
247	215	53300	5183	1.75	13782	14.5	1453	1300	5.1	0.23	1110	.	364	333	.	.	.	.	4.3
247	230	53300	5183	1.79	13732	14.5	1453	1630	5.1	0.23	1110	.	361	390	.	.	.	.	5.4
247	245	50300	5183	1.73	13782	14.5	1450	1730	5.1	0.23	1110	9	355	402	.	.	.	.	5.7
247	300	46000	4768	1.78	13792	14.0	1410	1600	4.5	0.25	1110	30	349	389	.	.	.	.	5.7
247	315	46000	4768	1.78	13792	14.0	1410	2030	4.5	0.25	1110	40	343	391	.	.	.	.	7.3
247	330	46000	4768	1.78	13782	14.0	1410	2810	4.6	0.25	1110	14	340	365	.	.	.	.	10
247	345	46000	4768	1.78	13782	14.0	1410	2900	4.5	0.25	1110	18	338	395	.	.	.	.	10
247	400	42300	4354	1.78	13782	14.5	1390	2960	4.5	0.27	1110	15	339	432	.	.	.	.	12
247	415	42300	4354	1.73	13792	14.5	1393	3350	4.5	0.27	1110	11	341	431	.	.	.	.	13
247	430	42000	4354	1.75	13782	14.5	1393	3320	4.5	0.27	1110	42	331	433	.	.	.	.	13
247	445	42300	4354	1.78	13782	14.5	1390	3050	4.5	0.27	1110	15	332	455	.	.	.	.	12
247	500	44000	4561	1.78	13792	16.0	1355	3130	4.5	0.30	1110	7	333	498	.	.	.	.	12
247	515	44000	4561	1.78	13792	15.0	1355	3130	4.5	0.30	1110	19	329	525	.	.	.	.	12
247	530	44000	4561	1.78	13732	16.0	1355	3220	4.5	0.30	1110	23	331	523	.	.	.	.	12
247	545	44000	4561	1.78	13782	16.0	1355	3210	4.5	0.30	1110	17	329	543	.	.	.	.	12
247	600	46300	4763	1.78	13792	15.7	1360	3280	4.5	0.29	1110	26	336	496	.	.	.	.	12
247	615	46300	4768	1.78	13792	15.7	1360	3210	4.5	0.29	1110	26	334	450	.	.	.	.	11
247	630	46000	4768	1.79	13792	15.7	1363	3100	4.5	0.29	1110	21	336	428	.	.	.	.	11
247	645	46000	4768	1.79	13782	15.7	1369	2840	4.5	0.29	1110	3	341	444	.	.	.	.	10
247	700	48000	4975	1.78	13782	16.2	1340	3130	4.8	0.28	1110	9	342	476	.	.	.	.	11
247	715	48000	4975	1.78	13792	16.2	1340	4420	4.8	0.28	1110	10	338	470	.	.	.	.	15
247	730	48000	4975	1.78	13792	16.2	1340	4350	4.8	0.28	1110	.	320	555	.	.	.	.	15
247	745	48000	4975	1.78	13782	16.2	1340	4400	4.5	0.28	1110	23	334	550	.	.	.	.	15
247	800	52000	5390	1.78	13732	15.7	1320	4390	5.1	0.27	1110	15	337	570	.	.	.	.	14
247	815	52300	5393	1.78	13782	16.7	1320	4290	5.1	0.27	1110	.	.	.	.	.	.	.	14
247	830	52000	5390	1.78	13782	16.7	1320	5110	5.1	0.27	1110	.	.	.	.	.	.	.	16
247	845	52000	5390	1.78	13782	16.7	1320	6160	5.1	0.27	1110	.	.	.	.	.	.	.	19
247	900	52000	5390	1.78	13782	18.7	1310	3890	4.4	0.35	1110	.	.	.	.	.	.	.	12
247	915	52000	5390	1.78	13782	18.7	1310	1020	4.4	0.35	1110	.	.	.	.	.	.	.	3.2
247	930	52000	5390	1.78	13792	18.7	1313	4610	4.4	0.35	1110	.	.	.	.	.	.	.	15
247	945	52300	5393	1.78	13732	18.7	1313	5040	4.4	0.35	1110	.	.	.	.	.	.	.	15

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
247	1000	52000	5390	1.78	13782	21.0	1380	4860	4.7	0.37	1110	.	.	.	.	.	.	.	15
247	1015	52000	5390	1.78	13782	21.0	1380	3060	4.7	0.37	1110	.	.	.	.	.	.	.	9.7
247	1030	52000	5390	1.78	13782	21.0	1380	2450	4.7	0.37	1110	.	.	.	.	.	.	.	7.7
247	1045	52000	5390	1.78	13782	21.0	1380	1760	4.7	0.37	1110	.	.	.	.	.	.	.	5.6
247	1100	56000	5805	1.78	13782	20.5	1440	1550	4.5	0.38	1110	.	.	.	.	.	.	.	4.5
247	1115	56000	5805	1.78	13782	20.5	1440	1290	4.5	0.38	1110	.	.	.	.	.	.	.	3.8
247	1130	56000	5805	1.78	13782	20.5	1440	2710	4.5	0.38	1110	.	.	.	.	.	.	.	8.0
247	1145	56000	5805	1.78	13782	20.5	1440	2890	4.5	0.38	1110	.	.	.	.	.	.	.	8.5
247	1200	56000	5805	1.78	13782	20.0	1440	2620	5.3	0.31	1110	.	.	.	.	.	.	.	7.7
247	1215	56000	5805	1.78	13782	20.0	1440	2470	5.3	0.31	1110	.	.	.	.	.	.	.	7.2
247	1230	56000	5805	1.78	13782	20.0	1440	2590	5.3	0.31	1110	.	.	.	.	.	.	.	7.6
247	1245	55000	5805	1.78	13782	20.0	1440	2670	5.3	0.31	1110	.	.	.	.	.	.	.	7.8
247	1300	56000	5805	1.78	13782	20.5	1440	2590	5.4	0.31	1110	.	.	.	.	.	.	.	7.6
247	1315	55000	5805	1.78	13782	20.5	1440	.	5.4	0.31	1110	.	.	.	.	.	.	.	.
247	1330	56000	5805	1.78	13782	20.5	1440	.	5.4	0.31	1110	.	.	.	.	.	.	.	.
247	1345	56000	5805	1.78	13782	20.5	1440	.	5.4	0.31	1110	.	.	.	.	.	.	.	.
247	1400	56000	5805	1.78	13782	21.0	1440	2570	5.1	0.34	1110	.	442	614	11.0	395	.	.	7.5
247	1415	56000	5805	1.78	13782	21.0	1440	2660	5.1	0.34	1110	.	449	626	10.8	394	.	.	7.8
247	1430	56000	5805	1.78	13782	21.0	1440	2780	5.1	0.34	1110	.	441	638	11.1	398	.	.	8.2
247	1445	55000	5805	1.78	13782	21.0	1440	2700	5.1	0.34	1110	12	425	686	10.8	372	15	98.7	7.9
247	1500	58000	6012	1.78	13782	21.2	1430	2590	5.1	0.35	1110	29	422	754	10.9	374	36	96.8	7.3
247	1515	58000	6012	1.78	13782	21.2	1430	2520	5.1	0.35	1110	18	424	676	11.0	379	22	98.0	7.1
247	1530	58000	6012	1.78	13782	21.2	1430	2470	5.1	0.35	1110	27	420	646	11.0	383	34	97.0	7.0
247	1545	58000	6012	1.78	13782	21.2	1430	2460	5.1	0.35	1110	22	431	606	11.1	389	28	97.5	7.0
247	1600	56000	5805	1.78	13782	21.2	1420	2330	4.8	0.37	1110	16	424	656	11.2	387	20	98.2	7.8
247	1615	55000	5805	1.78	13782	21.2	1420	2430	4.8	0.37	1110	36	430	626	10.9	381	44	96.0	7.1
247	1630	55000	5805	1.78	13782	21.2	1420	2510	4.8	0.37	1110	33	417	626	11.1	377	42	96.3	7.4
247	1645	56000	5805	1.78	13782	21.2	1420	2460	4.8	0.37	1110	44	419	626	11.3	383	56	94.9	7.2
247	1700	58000	6012	1.78	13782	21.2	1440	2390	4.9	0.36	1110	75	417	692	10.4	352	88	92.1	6.8
247	1715	58000	6012	1.78	13782	21.2	1440	2430	4.9	0.36	1110	78	418	687	10.6	359	93	91.6	6.9
247	1730	58000	6012	1.78	13782	21.2	1440	2450	4.9	0.36	1110	94	412	657	10.7	358	114	89.8	6.9
247	1745	58000	6012	1.78	13782	21.2	1440	2350	4.9	0.36	1110	92	420	644	10.7	364	111	90.0	6.7
247	1800	56000	5805	1.78	13782	21.7	1410	2280	4.5	0.40	1110	91	419	667	10.8	367	111	90.0	6.7
247	1615	55000	5805	1.78	13782	21.7	1410	2390	4.5	0.40	1110	93	415	697	10.6	357	111	90.0	7.0
247	1830	56000	5805	1.78	13782	21.7	1410	2310	4.5	0.40	1110	118	399	748	10.2	330	136	87.8	6.8
247	1845	56000	5805	1.78	13782	21.7	1410	2260	4.5	0.40	1110	147	406	717	11.8	395	199	82.1	6.6
247	1900	54000	5597	1.78	13782	22.0	1420	2310	4.8	0.38	1110	148	391	808	11.0	350	184	83.4	7.3
247	1915	54000	5597	1.78	13782	22.0	1420	2350	4.8	0.38	1110	133	409	738	11.1	363	157	84.9	7.2
247	1930	54000	5597	1.78	13782	22.0	1420	2320	4.8	0.38	1110	117	411	617	11.3	379	150	86.5	7.1
247	1945	54000	5597	1.78	13782	22.0	1420	2340	4.8	0.38	1110	114	407	617	11.4	379	148	86.7	7.1

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
247	2000	54000	5597	1.78	13782	21.7	1420	2280	4.8	0.38	1110	126	405	638	11.2	370	160	85.6	6.9
247	2015	54000	5597	1.78	13782	21.7	1420	2220	4.8	0.38	1110	132	398	638	11.1	359	166	85.0	6.8
247	2030	54000	5597	1.78	13782	21.7	1420	2310	4.8	0.38	1110	149	398	698	11.2	363	189	83.0	7.0
247	2045	54000	5597	1.78	13782	21.7	1420	2310	4.8	0.38	1110	159	394	773	11.4	367	206	81.4	7.0
247	2100	54000	5597	1.78	13782	20.7	1430	2260	4.9	0.35	1110	169	393	738	11.5	373	222	80.0	6.9
247	2115	54000	5597	1.78	13782	20.7	1430	2330	4.9	0.35	1110	168	393	728	11.4	366	218	80.4	7.1
247	2130	54000	5597	1.78	13782	20.7	1430	2500	4.9	0.35	1110	188	384	728	11.3	354	241	78.3	7.6
247	2145	54000	5597	1.78	13782	20.7	1430	2530	4.9	0.35	1110	187	391	721	11.3	361	240	78.4	7.7
247	2200	54000	5597	1.78	13782	20.7	1420	2590	4.7	0.36	1110	203	386	749	11.3	356	261	76.5	7.9
247	2215	54000	5597	1.78	13782	20.7	1420	2540	4.7	0.36	1110	208	383	766	11.1	343	262	76.4	7.7
247	2230	54000	5597	1.78	13782	20.7	1420	2240	4.7	0.36	1110	256	375	759	11.3	346	331	70.2	6.8
247	2245	54000	5597	1.78	13782	20.7	1420	2780	4.7	0.36	1110	248	387	759	11.4	361	322	71.0	8.5
247	2300	52000	5390	1.78	13782	21.5	1440	2740	5.1	0.35	1110	237	388	689	11.5	365	311	72.0	8.7
247	2315	52000	5390	1.78	13782	21.5	1440	2780	5.1	0.35	1110	244	391	659	11.8	380	330	70.2	8.8
247	2330	52000	5390	1.78	13782	21.5	1440	3320	5.1	0.35	1110	222	368	646	11.7	373	297	73.2	10
247	2345	52000	5390	1.78	13782	21.5	1440	3200	5.1	0.35	1110	258	385	608	11.7	370	346	68.9	10

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
248	0	54000	5776	1.60	13356	19.0	1440	2980	4.8	0.33	1030	234	375	.	11.7	372	324	68.6	9.8
248	15	54000	5775	1.60	13356	19.0	1440	2850	4.3	0.33	1030	235	372	.	11.6	365	321	69.8	9.4
248	36	54000	5776	1.60	13356	19.0	1440	2960	4.8	0.33	1030	247	365	.	11.6	358	330	67.2	9.7
248	45	54000	5776	1.60	13356	19.0	1440	2930	4.3	0.33	1030	265	362	508	11.4	349	355	65.6	9.6
248	100	52000	5562	1.60	13356	19.5	1420	3000	4.6	0.35	1030	286	362	502	11.4	348	303	62.8	10
248	115	52000	5562	1.60	13356	19.5	1420	3910	4.6	0.35	1030	287	361	477	11.3	343	380	53.1	13
248	130	52000	5562	1.60	13356	19.5	1420	4120	4.5	0.35	1030	278	362	471	11.5	352	376	63.5	14
248	145	52000	5562	1.60	13356	19.5	1420	4180	4.5	0.35	1030	256	374	491	11.3	356	339	67.1	14
248	200	52000	5562	1.60	13356	21.5	1420	4380	4.6	0.39	1030	247	378	477	.	.	.	.	15
248	215	52000	5562	1.60	13356	21.5	1420	4450	4.6	0.39	1030	233	376	513	.	.	.	.	15
248	230	52000	5562	1.60	13356	21.5	1420	4110	4.6	0.39	1030	239	376	496	.	.	.	.	14
248	245	52000	5562	1.60	13356	21.5	1420	3300	4.6	0.39	1030	240	377	508	.	.	.	.	11
248	300	50000	5348	1.60	13356	19.5	1440	1530	4.5	0.35	1030	253	372	500	.	.	.	.	5.8
248	315	50000	5348	1.60	13356	19.5	1440	900	4.5	0.35	1030	273	365	.	.	.	.	.	3.2
248	330	50000	5348	1.60	13356	19.5	1440	1200	4.6	0.35	1030	313	360	.	.	.	.	.	4.3
248	345	50000	5348	1.60	13356	19.5	1440	1230	4.6	0.35	1030	272	362	.	.	.	.	.	4.4
248	400	52000	5562	1.60	13356	19.5	1460	1300	4.8	0.34	1030	295	359	.	.	.	.	.	4.4
248	415	52000	5562	1.60	13356	19.5	1460	2340	4.8	0.34	1030	312	357	.	.	.	.	.	8.0
248	430	52000	5562	1.60	13356	19.5	1460	2850	4.3	0.34	1030	318	351	.	.	.	.	.	9.7
248	445	52000	5562	1.60	13356	19.5	1460	2850	4.8	0.34	1030	306	352	.	.	.	.	.	9.7
248	500	52000	5562	1.60	13356	19.5	1470	2800	4.8	0.32	1030	305	352	.	.	.	.	.	9.5
248	515	52000	5562	1.60	13356	18.5	1470	2800	4.8	0.32	1030	310	352	.	.	.	.	.	9.5
248	530	52000	5562	1.60	13356	18.5	1470	2660	4.8	0.32	1030	334	348	.	.	.	.	.	9.1
248	545	52000	5562	1.60	13356	18.5	1470	2890	4.8	0.32	1030	356	349	.	.	.	.	.	9.8
248	600	52000	5562	1.60	13356	18.5	1470	2590	4.6	0.33	1030	301	363	.	.	.	.	.	8.8
248	615	52000	5562	1.60	13356	19.5	1470	2540	4.5	0.33	1030	286	363	.	.	.	.	.	8.7
248	630	52000	5562	1.60	13356	18.5	1470	3500	4.6	0.33	1030	324	353	.	.	.	.	.	12
248	645	52000	5562	1.60	13356	18.5	1470	3480	4.6	0.33	1030	341	357	.	.	.	.	.	12
248	700	50000	5348	1.60	13336	19.0	1440	4030	4.8	0.33	1030	300	364	.	.	.	.	.	14
248	715	50000	5348	1.60	13356	19.0	1440	3890	4.8	0.33	1030	281	364	.	.	.	.	.	14
248	730	50000	5348	1.60	13356	19.0	1440	.	4.8	0.33	1030	261	364	.	.	.	.	.	.
248	745	50000	5348	1.60	13356	19.0	1440	2130	4.8	0.33	1030	220	.	.	.	.	.	.	7.5
248	800	50000	5348	1.50	13336	19.0	1440	1310	4.6	0.34	1030	.	.	.	.	.	.	.	4.6
248	815	50000	5348	1.60	13356	19.0	1440	1330	4.6	0.34	1030	.	.	.	.	.	.	.	4.7
248	830	50000	5348	1.60	13356	19.0	1440	1340	4.6	0.34	1030	.	.	522	.	.	.	.	4.7
248	845	50000	5348	1.60	13356	19.0	1440	1340	4.6	0.34	1030	.	.	537	.	.	.	.	4.7
248	900	52000	5562	1.60	13356	19.0	1440	1360	4.8	0.33	1030	.	.	538	.	.	.	.	4.5
248	915	52000	5562	1.60	13356	19.0	1440	1370	4.8	0.33	1030	.	.	538	.	.	.	.	4.7
248	930	52000	5562	1.60	13356	19.0	1440	1350	4.8	0.33	1030	.	.	528	.	.	.	.	4.6
248	945	52000	5562	1.60	13356	19.0	1440	1440	4.8	0.33	1030	.	.	556	.	.	.	.	4.8

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
248	1000	48000	5134	1.60	13356	19.0	1450	1480	4.7	0.34	1030	.	.	590	.	.	.	.	5.5
248	1015	48000	5134	1.60	13356	19.0	1450	1510	4.7	0.34	1030	.	.	616	.	.	.	.	5.6
248	1030	48000	5134	1.60	13356	19.0	1455	1520	4.7	0.34	1030	.	.	615	.	.	.	.	5.6
248	1045	48000	5134	1.60	13356	19.0	1455	1550	4.7	0.34	1030	.	.	638	.	.	.	.	5.7
248	1100	50000	5348	1.60	13356	19.0	1460	1520	4.7	0.33	1030	17	.	633	.	.	.	.	5.4
248	1115	50000	5348	1.60	13356	19.0	1460	1620	4.7	0.33	1030	106	.	665	.	.	.	.	5.7
248	1130	50000	5348	1.60	13356	19.0	1460	1660	4.7	0.33	1030	139	.	682	.	.	.	.	5.9
248	1145	50000	5348	1.60	13356	19.0	1460	1620	4.7	0.33	1030	165	.	740	.	.	.	.	5.7
248	1200	50000	5348	1.60	13356	19.0	1480	1550	4.8	0.33	1030	175	.	695	.	.	.	.	5.5
248	1215	50000	5348	1.60	13356	19.0	1480	1450	4.8	0.33	1030	209	.	655	.	.	.	.	5.1
248	1230	50000	5348	1.60	13356	19.0	1480	1450	4.9	0.33	1030	167	.	614	.	.	.	.	5.1
248	1245	50000	5348	1.60	13356	19.0	1480	1500	4.9	0.33	1030	180	.	573	.	.	.	.	5.3
248	1300	50000	5348	1.60	13356	19.0	1430	1500	4.9	0.33	1030	116	.	573	.	.	.	.	5.3
248	1315	50000	5348	1.60	13356	19.0	1430	1510	4.9	0.33	1030	50	.	604	.	.	.	.	5.4
248	1330	50000	5348	1.60	13356	19.0	1430	1470	4.8	0.33	1030	47	.	597	.	.	.	.	5.2
248	1345	50000	5348	1.60	13356	19.0	1430	1550	4.8	0.33	1030	64	.	617	.	.	.	.	5.5
248	1400	50000	5348	1.60	13356	19.0	1470	1590	4.8	0.33	1030	103	.	640	.	.	.	.	5.6
248	1415	50000	5348	1.60	13356	19.0	1470	1550	4.8	0.33	1030	.	.	719	.	.	.	.	5.5
248	1430	50000	5348	1.60	13356	19.0	1470	1500	4.8	0.33	1030	105	.	762	.	.	.	.	5.3
248	1445	50000	5348	1.60	13356	19.0	1470	1490	4.9	0.33	1030	.	.	756	.	.	.	.	5.3
248	1500	52000	5562	1.60	13356	19.0	1465	1550	4.8	0.33	1030	.	.	710	.	.	.	.	5.3
248	1515	52000	5562	1.60	13356	19.0	1465	1500	4.8	0.33	1030	.	.	672	.	.	.	.	5.1
248	1530	52000	5562	1.60	13356	19.0	1465	1360	4.8	0.33	1030	9	.	575	11.2	.	12	98.9	4.5
248	1545	52000	5562	1.60	13356	19.0	1465	1490	4.8	0.33	1030	53	.	486	11.3	.	70	93.2	5.1
248	1600	52000	5562	1.60	13356	19.7	1465	1590	4.9	0.32	1030	63	.	506	10.9	.	80	92.2	5.7
248	1615	52000	5562	1.60	13356	18.7	1465	1800	4.9	0.32	1030	75	.	515	10.5	.	92	91.1	6.1
248	1630	52000	5562	1.60	13356	18.7	1465	1540	4.9	0.32	1030	55	.	530	10.7	.	69	93.3	5.2
248	1645	52000	5562	1.60	13356	18.7	1465	1480	4.9	0.32	1030	56	.	552	10.6	.	69	93.3	5.0
248	1700	54000	5776	1.60	13356	18.7	1470	1590	4.8	0.33	1030	46	.	567	10.8	.	58	94.4	5.2
248	1715	54000	5776	1.60	13356	18.7	1470	1670	4.8	0.33	1030	54	.	593	.	.	.	.	5.5
248	1730	54000	5776	1.60	13356	18.7	1470	1440	4.8	0.33	1030	.	.	612	.	.	.	.	4.7
248	1745	54000	5776	1.60	13356	19.7	1470	1360	4.8	0.33	1030	.	.	591	.	.	.	.	4.5
248	1800	54000	5776	1.60	13356	19.7	1495	1340	5.1	0.31	1030	.	.	632	10.8	.	.	.	4.4
248	1815	54000	5776	1.60	13356	18.7	1495	1360	5.1	0.31	1030	.	341	603	10.8	308	.	.	4.5
248	1830	54000	5776	1.60	13356	18.7	1495	1400	5.1	0.31	1030	.	359	603	10.6	318	.	.	4.6
248	1845	54000	5776	1.60	13356	18.7	1495	1500	5.1	0.31	1030	.	364	619	10.4	317	.	.	4.3
248	1900	54000	5776	1.60	13356	18.7	1495	1470	4.8	0.33	1030	4	360	656	10.5	316	5	99.5	4.8
248	1915	54000	5776	1.60	13356	18.7	1495	1330	4.9	0.33	1030	8	363	645	10.5	319	10	99.1	4.4
248	1930	54000	5776	1.60	13356	18.7	1495	1550	4.3	0.33	1030	.	353	623	10.6	322	.	.	5.1
248	1945	54000	5776	1.60	13356	18.7	1495	1490	4.8	0.33	1030	1	362	605	10.5	318	1	99.9	4.9

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
248	2000	54000	5775	1.60	13356	18.7	1470	1450	4.5	0.34	1030	13	359	552	10.5	315	16	98.5	4.8
248	2015	54000	5775	1.60	13356	18.7	1470	1520	4.5	0.34	1030	10	359	539	10.6	318	12	98.8	5.0
248	2030	54000	5776	1.60	13356	18.7	1473	1630	4.6	0.34	1030	16	358	585	10.7	321	20	98.1	5.3
248	2045	54000	5775	1.60	13356	18.7	1470	1530	4.6	0.34	1030	13	358	588	10.7	321	16	98.4	5.0
248	2100	52000	5562	1.60	13356	18.7	1460	1470	4.6	0.34	1030	10	356	.	10.8	322	13	98.8	5.0
248	2115	52000	5562	1.60	13356	18.7	1460	1440	4.6	0.34	1030	16	351	.	10.9	321	20	98.0	4.9
248	2130	52000	5562	1.60	13356	18.7	1460	1400	4.6	0.34	1030	24	350	.	10.4	304	29	97.2	4.8
248	2145	52000	5562	1.60	13356	18.7	1463	1410	4.6	0.34	1030	41	344	.	10.7	309	51	95.0	4.8
248	2200	52000	5562	1.60	13356	18.7	1483	1420	4.5	0.34	1030	38	347	.	10.8	314	48	95.4	4.8
248	2215	52000	5562	1.60	13356	18.7	1480	1450	4.6	0.34	1030	10	356	.	10.9	325	13	98.8	4.9
248	2230	52000	5562	1.60	13356	18.7	1463	1440	4.5	0.34	1030	10	362	.	10.9	331	13	98.8	4.9
248	2245	52000	5562	1.60	13356	18.7	1460	1440	4.6	0.34	1030	6	365	.	10.9	333	8	99.3	4.9
248	2300	52000	5562	1.60	13356	18.0	1475	1560	4.3	0.31	1030	6	357	.	10.3	325	8	99.3	5.3
248	2315	52000	5562	1.60	13356	18.0	1475	1640	4.8	0.31	1030	17	360	.	10.9	329	22	97.8	5.5
248	2330	52000	5562	1.60	13356	18.0	1475	1610	4.8	0.31	1030	18	362	.	10.9	331	23	97.9	5.5
248	2345	52000	5562	1.60	13356	18.0	1475	1490	4.8	0.31	1030	21	357	.	10.8	323	26	97.4	5.1

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
249	0	52000	5390	1.49	13782	19.0	1470	1390	4.6	0.34	930	16	365	.	11.0	326	20	97.9	5.2
249	15	52000	5390	1.49	13782	19.0	1470	1410	4.6	0.34	930	23	358	.	10.9	317	20	97.8	5.3
249	30	52000	5390	1.49	13782	19.0	1470	1410	4.6	0.34	930	55	351	.	10.7	305	66	92.9	5.3
249	45	52000	5390	1.49	13782	19.0	1470	1520	4.6	0.34	930	48	347	.	10.7	301	58	93.8	5.7
249	100	52000	5547	1.49	13155	18.2	1480	1500	4.8	0.32	974	45	349	.	10.9	324	58	94.0	5.4
249	115	52000	5547	1.49	13155	18.2	1480	1440	4.8	0.32	974	31	359	.	10.9	333	40	95.9	5.2
249	130	52000	5547	1.49	13155	18.2	1480	1450	4.8	0.32	974	15	366	.	11.1	346	20	98.0	5.2
249	145	52000	5547	1.49	13155	18.2	1480	1530	4.8	0.32	974	.	372	.	11.0	348	.	.	5.6
249	200	50000	5430	1.49	13155	17.5	1480	1660	4.5	0.31	974	4	366	.	11.2	350	5	99.5	5.2
249	215	50000	5430	1.49	13155	17.5	1480	1580	4.5	0.31	974	2	371	.	11.0	348	3	99.7	5.9
249	230	50000	5430	1.49	13155	17.5	1480	1490	4.5	0.31	974	.	375	.	11.0	351	.	.	5.6
249	245	50000	5430	1.49	13155	17.5	1480	1650	4.5	0.31	974	.	370	.	11.0	347	.	.	6.2
249	300	50000	5430	1.49	13155	18.0	1470	2000	4.8	0.31	974	.	366	.	11.0	343	.	.	7.3
249	315	50000	5430	1.49	13155	18.0	1470	2030	4.8	0.31	974	.	378	.	11.0	347	.	.	7.6
249	330	50000	5430	1.49	13155	18.0	1470	2020	4.8	0.31	974	.	367	.	10.9	340	.	.	7.5
249	345	50000	5430	1.49	13155	18.0	1470	2040	4.8	0.31	974	.	367	.	10.9	340	.	.	7.5
249	400	50000	5430	1.49	13155	17.5	1460	2020	4.6	0.31	974	.	365	.	10.9	338	.	.	7.5
249	415	50000	5430	1.49	13155	17.5	1460	2050	4.6	0.31	974	.	361	.	10.9	335	.	.	7.7
249	430	50000	5430	1.49	13155	17.5	1460	2020	4.6	0.31	974	.	365	.	10.9	338	.	.	7.6
249	445	50000	5430	1.49	13155	17.5	1460	2220	4.6	0.31	974	.	362	.	10.9	336	.	.	8.3
249	500	50000	5430	1.49	13155	18.5	1460	2470	4.5	0.33	974	.	364	.	10.8	334	.	.	9.3
249	515	50000	5430	1.49	13155	18.5	1460	2550	4.5	0.33	974	.	364	.	10.9	338	.	.	9.6
249	530	50000	5430	1.49	13155	18.5	1460	2480	4.6	0.33	974	.	361	.	10.8	331	.	.	9.3
249	545	50000	5430	1.49	13155	18.5	1460	2340	4.6	0.33	974	.	359	.	10.8	333	.	.	8.8
249	600	50000	5430	1.49	13155	18.5	1470	2250	4.6	0.33	974	.	365	.	10.7	332	.	.	8.4
249	615	50000	5430	1.49	13155	18.5	1470	2390	4.6	0.33	974	.	369	.	10.8	339	.	.	9.0
249	630	50000	5430	1.49	13155	18.5	1470	2580	4.6	0.33	974	.	368	.	10.8	338	.	.	9.7
249	645	50000	5430	1.49	13155	18.5	1470	2580	4.6	0.33	974	.	365	.	10.6	329	.	.	9.7
249	700	58000	6299	1.49	13155	19.0	1480	2380	4.8	0.33	974	.	365	.	10.6	329	.	.	7.7
249	715	58000	6299	1.49	13155	19.0	1480	2330	4.8	0.33	974	.	356	.	10.3	311	.	.	7.7
249	730	58000	6299	1.49	13155	19.0	1480	2390	4.8	0.33	974	.	359	.	10.3	314	.	.	7.7
249	745	58000	6299	1.49	13155	19.0	1480	2150	4.8	0.33	974	.	352	.	9.9	297	.	.	6.9
249	800	56000	6081	1.49	13155	19.0	1490	2160	4.8	0.33	974	.	.	.	10.3	.	.	.	7.2
249	815	56000	6081	1.49	13155	19.0	1490	2120	4.8	0.33	974	.	.	.	10.3	.	.	.	7.1
249	830	56000	6081	1.49	13155	19.0	1490	2140	4.8	0.33	974	.	.	.	10.3	.	.	.	7.2
249	845	56000	6081	1.49	13155	19.0	1490	2250	4.8	0.33	974	.	.	.	10.3	.	.	.	7.5
249	900	54000	5864	1.49	13155	19.5	1425	2390	4.7	0.34	974	.	.	.	.	.	.	.	8.3
249	915	54000	5864	1.49	13155	19.5	1425	2360	4.7	0.34	974	.	.	.	.	.	.	.	8.2
249	930	54000	5864	1.49	13155	19.5	1425	2300	4.7	0.34	974	.	.	.	.	.	.	.	8.3
249	945	54000	5864	1.49	13155	19.5	1425	2200	4.7	0.34	974	.	.	.	.	.	.	.	7.6

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
249	1000	54000	5864	1.49	13155	19.7	1460	2230	5.2	0.31	974	.	.	.	.	.	.	.	7.7
249	1015	54000	5864	1.49	13155	19.7	1460	2530	5.2	0.31	974	.	.	.	.	.	.	.	8.5
249	1030	54000	5864	1.49	13155	19.7	1460	2560	5.2	0.31	974	.	.	.	.	.	.	.	8.9
249	1045	54000	5864	1.49	13155	19.7	1460	2640	5.2	0.31	974	.	.	590	.	.	.	.	9.2
249	1100	54000	5864	1.49	13155	19.5	1470	2670	4.8	0.34	974	.	356	571	.	.	.	.	9.3
249	1115	54000	5864	1.49	13155	19.5	1470	2670	4.8	0.34	974	2	356	600	.	.	.	.	9.3
249	1130	54000	5864	1.49	13155	19.5	1470	2110	4.8	0.34	974	9	365	675	.	.	.	.	7.3
249	1145	54000	5864	1.49	13155	19.5	1470	2200	4.3	0.34	974	.	390	599	.	.	.	.	7.6
249	1200	58000	6299	1.49	13155	19.5	1520	2280	4.6	0.35	974	2	366	633	11.0	343	3	99.7	7.4
249	1215	58000	6299	1.49	13155	19.5	1520	2270	4.6	0.35	974	.	305	651	10.9	283	.	.	7.3
249	1230	58000	6299	1.49	13155	19.5	1520	2290	4.5	0.35	974	6	312	706	10.6	281	8	99.2	7.4
249	1245	58000	6299	1.49	13155	19.5	1520	2160	4.5	0.35	974	6	328	633	10.5	292	7	99.2	7.0
249	1300	50000	5430	1.49	13155	19.5	1480	1930	4.6	0.35	974	32	325	724	10.4	287	39	95.0	7.2
249	1315	50000	5430	1.49	13155	19.5	1480	1740	4.6	0.35	974	8	357	557	10.6	321	10	99.0	6.5
249	1330	50000	5430	1.49	13155	19.5	1480	1710	4.6	0.35	974	16	342	634	11.0	320	21	97.9	6.4
249	1345	50000	5430	1.49	13155	19.5	1480	1670	4.6	0.35	974	.	347	569	11.1	328	.	.	6.3
249	1400	60000	6516	1.49	13155	19.2	1490	1680	5.4	0.30	974	8	343	653	11.2	328	11	98.9	5.2
249	1415	60000	6516	1.49	13155	19.2	1490	1740	5.4	0.30	974	8	346	651	11.2	331	11	98.9	5.4
249	1430	60000	6516	1.49	13155	19.2	1490	1780	5.4	0.30	974	16	342	680	10.9	317	21	97.3	5.6
249	1445	60000	6516	1.49	13155	19.2	1490	1680	5.4	0.30	974	20	344	664	10.9	319	26	97.3	5.2
249	1500	62000	6733	1.49	13155	19.7	1505	1710	5.1	0.32	974	19	342	642	11.0	320	25	97.5	5.2
249	1515	62000	6733	1.49	13155	19.7	1505	1780	5.1	0.32	974	23	333	637	10.9	313	30	97.0	5.4
249	1530	62000	6733	1.49	13155	19.7	1505	1770	5.1	0.32	974	39	342	615	10.9	317	50	94.8	5.4
249	1545	62000	6733	1.49	13155	19.7	1505	1670	5.1	0.32	974	34	.	670	.	.	.	.	5.0
249	1600	62000	6733	1.49	13155	18.7	1550	1780	5.4	0.29	974	.	.	669	10.8	.	.	.	5.4
249	1615	62000	6733	1.49	13155	18.7	1550	1730	5.4	0.29	974	101	338	692	10.4	299	124	87.2	5.2
249	1630	62000	6733	1.49	13155	18.7	1550	.	5.4	0.29	974	110	333	793	10.5	297	137	85.0	.
249	1645	62000	6733	1.49	13155	18.7	1550	.	5.4	0.29	974	103	333	771	10.6	300	129	86.7	.
249	1700	64000	6950	1.49	13155	19.0	1550	.	5.4	0.29	974	88	335	619	10.5	299	109	88.0	.
249	1715	64000	6950	1.49	13155	19.0	1550	1830	5.4	0.29	974	93	341	581	10.5	304	115	88.1	5.4
249	1730	64000	6950	1.49	13155	19.0	1550	1920	5.4	0.29	974	122	338	562	10.6	304	153	84.3	5.6
249	1745	64000	6950	1.49	13155	19.0	1550	1820	5.4	0.29	974	115	330	576	10.6	297	144	85.2	5.3
249	1800	58000	6299	1.49	13155	19.0	1510	1710	4.6	0.34	974	149	329	583	10.7	299	189	80.6	5.5
249	1815	58000	6299	1.49	13155	19.0	1510	1790	4.6	0.34	974	168	329	624	10.7	293	213	73.2	5.8
249	1830	58000	6299	1.49	13155	19.0	1510	1990	4.5	0.34	974	240	329	657	10.8	302	307	68.5	6.4
249	1845	58000	6299	1.49	13155	19.0	1510	2000	4.5	0.34	974	217	317	702	10.8	291	277	71.5	5.5
249	1900	54000	5864	1.49	13155	19.0	1470	1690	4.6	0.34	974	250	327	681	11.4	319	340	55.1	5.9
249	1915	54000	5864	1.49	13155	19.0	1470	1490	4.6	0.34	974	118	337	627	11.9	347	169	82.6	5.2
249	1930	54000	5864	1.49	13155	19.0	1470	1510	4.5	0.34	974	48	343	623	12.0	357	70	92.8	5.2
249	1945	54000	5864	1.49	13155	19.0	1470	1510	4.5	0.34	974	52	341	656	12.2	363	77	92.1	5.2

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
249	2000	52000	5647	1.49	13155	19.0	1470	1570	4.8	0.33	974	43	342	620	12.3	369	65	93.4	5.7
249	2015	52000	5647	1.49	13155	19.0	1470	1640	4.8	0.33	974	44	345	623	12.3	372	66	93.2	5.9
249	2030	52000	5547	1.49	13155	19.0	1470	1710	4.8	0.33	974	46	347	636	12.4	379	70	92.8	6.2
249	2045	52000	5547	1.49	13155	19.0	1470	1700	4.8	0.33	974	41	356	575	12.6	398	64	93.4	6.1
249	2100	52000	5547	1.49	13155	19.0	1470	1630	4.8	0.33	974	39	365	538	12.3	419	62	93.6	5.9
249	2115	52000	5547	1.49	13155	19.0	1470	1550	4.8	0.33	974	30	363	531	12.9	421	48	95.0	5.5
249	2130	52000	5547	1.49	13155	19.0	1470	1540	4.8	0.33	974	24	366	491	12.9	424	39	96.0	5.6
249	2145	52000	5547	1.49	13155	18.0	1470	1560	4.8	0.33	974	29	361	496	13.0	424	47	95.1	5.6
249	2200	52000	5647	1.49	13155	18.5	1470	1570	4.8	0.32	974	43	364	498	12.9	422	69	92.9	5.7
249	2215	52000	5547	1.49	13155	18.5	1470	1510	4.8	0.32	974	43	360	537	13.1	428	71	92.7	5.4
249	2230	52000	5547	1.49	13155	18.5	1470	1490	4.8	0.32	974	29	358	544	13.0	423	47	95.1	5.4
249	2245	52000	5547	1.49	13155	18.5	1470	1640	4.8	0.32	974	24	358	544	13.1	425	40	95.9	5.9
249	2300	52000	5647	1.49	13155	19.0	1460	1620	4.8	0.33	974	.	.	543	12.7	.	.	.	5.8
249	2315	52000	5547	1.49	13155	19.0	1460	1620	4.8	0.33	974	30	364	540	12.6	407	47	95.2	5.8
249	2330	52000	5647	1.49	13155	19.0	1460	1600	4.8	0.33	974	30	359	566	12.9	416	48	95.0	5.8
249	2345	52000	5547	1.49	13155	19.0	1460	1490	4.8	0.33	974	30	354	554	13.0	416	49	95.0	5.4

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
252	0	52000	5562	1.60	13356	17.5	1480	2940	4.8	0.30	1030	29	364	565	16.1	693	77	92.5	10
252	15	52000	5562	1.60	13356	17.5	1480	3730	4.9	0.30	1030	24	367	555	15.9	670	61	94.1	13
252	30	52000	5562	1.60	13355	17.5	1480	3950	4.8	0.30	1030	23	367	591	16.0	684	60	94.2	13
252	45	52000	5562	1.60	13356	17.5	1480	3830	4.8	0.30	1030	28	366	597	15.9	669	71	93.1	13
252	100	53000	5669	1.60	13356	18.5	1480	3930	4.5	0.33	1030	30	368	596	16.0	686	78	92.4	13
252	115	53000	5569	1.60	13356	18.5	1480	3850	4.5	0.33	1030	22	366	618	16.0	682	57	94.5	13
252	130	53000	5569	1.50	13355	18.5	1460	3570	4.5	0.33	1030	28	368	646	16.0	686	73	92.9	12
252	145	53000	5569	1.60	13356	18.5	1480	3490	4.6	0.33	1030	23	367	669	15.7	645	56	94.5	12
252	200	54000	5776	1.60	13356	19.5	1480	3550	4.6	0.35	1030	29	363	656	15.9	663	74	92.8	12
252	215	54000	5775	1.60	13356	19.5	1480	3560	4.6	0.35	1030	27	374	634	15.9	683	69	93.3	12
252	230	54000	5775	1.63	13356	19.5	1460	2850	4.6	0.35	1030	32	377	614	15.8	675	80	92.3	9.4
252	245	54000	5776	1.60	13356	19.5	1480	1590	4.6	0.35	1030	33	376	595	15.8	673	82	92.0	5.2
252	300	52000	5562	1.60	13356	19.0	1480	1500	4.9	0.33	1030	31	376	587	15.9	687	79	92.3	5.1
252	315	52000	5562	1.60	13356	19.0	1480	1510	4.8	0.33	1030	27	384	576	15.9	701	69	93.3	5.1
252	330	52000	5562	1.50	13356	19.0	1480	1490	4.9	0.33	1030	22	383	574	15.8	686	55	94.7	5.1
252	345	52000	5562	1.60	13356	19.0	1480	1460	4.9	0.33	1030	20	379	596	15.8	679	50	95.2	5.0
252	400	54000	5775	1.60	13356	18.5	1480	1460	4.5	0.33	1030	23	375	617	15.8	673	57	94.4	4.9
252	415	54000	5776	1.60	13356	18.5	1480	1440	4.6	0.33	1030	22	373	627	15.8	669	55	94.7	4.7
252	430	54000	5776	1.60	13356	18.5	1480	1560	4.5	0.33	1030	16	371	668	15.5	639	38	95.3	5.1
252	445	54000	5775	1.60	13356	18.5	1480	1520	4.6	0.33	1030	23	365	677	15.7	641	56	94.5	5.0
252	500	52000	5562	1.60	13356	18.5	1480	1500	4.6	0.33	1030	33	371	683	15.5	639	79	92.3	5.1
252	515	52000	5562	1.50	13356	18.5	1480	1620	4.6	0.33	1030	29	368	702	15.5	622	68	93.4	5.5
252	530	52000	5562	1.60	13356	18.5	1480	1660	4.5	0.33	1030	38	373	648	15.6	643	91	91.1	5.7
252	545	52000	5562	1.60	13356	18.5	1480	1600	4.6	0.33	1030	41	376	577	15.6	648	98	90.4	5.5
252	600	52000	5562	1.60	13356	19.0	1480	1470	4.6	0.34	1030	39	383	543	15.3	625	89	91.4	5.0
252	615	52000	5562	1.60	13356	19.0	1480	1480	4.6	0.34	1030	33	381	540	15.2	611	74	92.9	5.0
252	630	52000	5552	1.60	13356	19.0	1480	1560	4.6	0.34	1030	22	379	571	15.2	607	49	95.2	5.3
252	645	52000	5562	1.60	13356	19.0	1480	1610	4.6	0.34	1030	17	379	588	15.2	607	38	96.3	5.5
252	700	54000	5775	1.50	13356	19.0	1480	1550	4.5	0.34	1030	6	379	644	15.0	587	13	98.7	5.1
252	715	54000	5776	1.60	13356	19.0	1480	1540	4.5	0.34	1030	40	375	638	14.9	571	85	91.8	5.1
252	730	54000	5776	1.60	13356	19.0	1480	1590	4.5	0.34	1030	42	374	651	14.8	560	88	91.5	5.2
252	745	54000	5775	1.60	13356	19.0	1480	1610	4.5	0.34	1030	38	.	.	.	.	.	.	5.3
252	800	54000	5776	1.60	13356	19.0	1480	1570	4.6	0.34	1030	42	.	.	.	.	.	.	5.2
252	815	54000	5775	1.60	13356	19.0	1480	1560	4.5	0.34	1030	41	.	.	.	.	.	.	5.1
252	830	54000	5776	1.60	13355	19.0	1480	1530	4.6	0.34	1030	44	.	.	6.1	.	38	96.3	5.0
252	845	54000	5776	1.60	13356	19.0	1460	1530	4.6	0.34	1030	22	354	604	5.5	210	18	98.2	5.0
252	900	54000	5775	1.63	13356	19.0	1453	1590	4.6	0.34	1030	.	355	606	5.6	212	.	.	5.2
252	915	54000	5775	1.60	13356	19.0	1453	1570	4.6	0.34	1030	.	352	604	5.8	213	.	.	5.2
252	930	54000	5775	1.60	13336	19.0	1453	1530	4.5	0.34	1030	.	345	620	6.0	211	.	.	5.0
252	945	54000	5776	1.60	13356	19.0	1453	1590	4.5	0.34	1030	16	342	636	6.1	211	14	98.7	5.2

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
252	1000	54000	5776	1.60	13356	19.0	1458	1560	4.8	0.33	1030	15	345	622	6.5	219	13	99.7	5.1
252	1015	54000	5776	1.60	13356	19.0	1458	1530	4.8	0.33	1030	17	345	613	.	.	.	.	5.0
252	1030	54000	5776	1.60	13356	19.0	1456	1530	4.8	0.33	1030	25	373	598	.	.	.	.	5.0
252	1045	54000	5776	1.60	13356	19.0	1458	1560	4.8	0.33	1030	38	364	.	.	.	.	.	5.1
252	1100	54000	5776	1.60	13356	19.0	1460	1480	4.8	0.33	1030	36	345	592	11.4	332	48	95.3	4.9
252	1115	54000	5776	1.60	13356	19.0	1460	1740	4.8	0.33	1030	36	350	599	11.4	337	48	95.3	5.7
252	1130	54000	5776	1.60	13356	19.0	1460	1800	4.8	0.33	1030	37	341	609	11.1	318	48	95.3	5.9
252	1145	54000	5776	1.60	13356	19.0	1460	1670	4.8	0.33	1030	11	347	620	11.2	327	14	98.6	5.3
252	1200	52000	5562	1.60	13356	18.0	1453	1850	4.8	0.31	1030	15	346	652	11.1	322	19	98.1	6.3
252	1215	52000	5562	1.60	13356	18.0	1453	1710	4.8	0.31	1030	23	343	625	11.2	323	30	97.1	5.8
252	1230	52000	5562	1.60	13356	18.0	1453	1730	4.8	0.31	1030	28	355	572	11.4	341	37	96.4	5.9
252	1245	52000	5562	1.60	13356	18.0	1453	1780	4.8	0.31	1030	34	358	575	11.4	344	46	95.6	6.1
252	1300	48000	5134	1.60	13356	18.5	1443	1790	4.5	0.33	1030	44	360	549	11.5	350	60	94.2	6.6
252	1315	48000	5134	1.60	13356	18.5	1443	1770	4.6	0.33	1030	38	360	553	11.3	343	50	95.1	6.5
252	1330	48000	5134	1.60	13356	18.5	1443	1720	4.6	0.33	1030	21	360	547	11.3	343	28	97.3	6.3
252	1345	48000	5134	1.60	13356	18.5	1443	1630	4.5	0.33	1030	26	360	565	11.3	343	34	95.7	6.0
252	1400	54000	5776	1.60	13356	18.0	1470	1590	4.8	0.31	1030	20	356	598	11.4	342	27	97.4	5.2
252	1415	54000	5776	1.60	13356	19.0	1470	1630	4.8	0.31	1030	19	350	610	11.4	337	25	97.5	5.3
252	1430	54000	5776	1.60	13356	18.0	1470	1670	4.8	0.31	1030	31	350	612	11.2	330	41	96.1	5.3
252	1445	54000	5776	1.60	13356	18.0	1470	1660	4.8	0.31	1030	19	342	649	11.0	316	24	97.6	5.4
252	1500	54000	5776	1.60	13356	18.0	1470	1660	4.8	0.31	1030	27	340	683	10.9	311	34	96.7	5.4
252	1515	54000	5776	1.60	13356	19.0	1470	1690	4.8	0.31	1030	15	342	647	11.0	315	19	98.1	5.5
252	1530	54000	5776	1.60	13356	18.0	1470	1600	4.8	0.31	1030	24	347	626	11.2	327	31	95.9	5.3
252	1545	54000	5776	1.60	13356	18.0	1470	1590	4.8	0.31	1030	46	356	579	11.2	335	60	94.1	5.2
252	1600	52000	5562	1.60	13356	18.0	1470	1630	4.8	0.31	1030	49	355	599	11.2	334	64	93.8	5.6
252	1615	52000	5562	1.60	13356	18.0	1470	1650	4.8	0.31	1030	39	347	628	11.1	323	51	95.1	5.6
252	1630	52000	5562	1.60	13356	18.0	1470	[illegible]	[illegible]	0.31	1030	32	353	583	11.3	[illegible]	42	95.9	5.6
252	1645	52000	5562	1.60	13356	18.0	1470	1620	4.8	0.31	1030	23	352	599	11.2	331	30	97.1	5.5
252	1700	50000	5348	1.60	13356	18.0	1470	1620	4.8	0.31	1030	25	345	602	11.1	322	32	95.8	5.7
252	1715	50000	5348	1.60	13356	19.0	1470	1710	4.8	0.31	1030	32	340	649	11.1	317	42	95.0	5.1
252	1730	50000	5348	1.60	13356	18.0	1470	1830	4.8	0.31	1030	21	335	665	10.9	306	27	97.4	6.4
252	1745	50000	5348	1.60	13356	18.0	1470	1750	4.8	0.31	1030	29	331	676	10.9	302	37	96.4	6.2
252	1800	54000	5776	1.60	13356	18.0	1470	1870	4.8	0.31	1030	36	342	635	11.1	319	47	95.5	6.1
252	1815	54000	5776	1.60	13356	19.0	1470	1840	4.8	0.31	1030	52	349	608	11.2	329	68	93.4	6.0
252	1830	54000	5776	1.60	13356	18.0	1470	1680	4.8	0.31	1030	58	349	586	11.2	329	76	92.6	5.5
252	1845	54000	5776	1.60	13356	19.0	1470	1750	4.8	0.31	1030	62	346	617	11.1	322	80	92.2	5.7
252	1900	54000	5776	1.60	13356	18.0	1470	1790	4.8	0.31	1030	45	342	613	11.2	322	59	94.3	5.9
252	1515	54000	5776	1.60	13356	18.0	1470	1840	4.8	0.31	1030	38	340	602	11.1	317	49	95.2	6.0
252	1930	54000	5776	1.60	13356	19.0	1470	1850	4.8	0.31	1030	38	338	622	11.1	315	49	95.2	6.1
252	1945	54000	5776	1.60	13356	18.0	1470	1840	4.8	0.31	1030	39	330	666	11.0	304	50	95.1	6.0

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
252	2000	52000	5562	1.60	13356	18.0	1470	1850	4.9	0.31	1030	39	324	716	10.9	296	50	95.2	6.3
252	2015	52000	5562	1.60	13356	18.0	1470	1810	4.9	0.31	1030	42	324	687	10.9	295	53	94.8	6.2
252	2030	52000	5562	1.60	13356	18.0	1470	1740	4.9	0.31	1030	54	328	693	11.0	303	69	93.3	5.9
252	2045	52000	5562	1.60	13356	18.0	1470	1680	4.9	0.31	1030	72	339	613	11.3	323	95	90.7	5.7
252	2100	52000	5562	1.60	13356	18.0	1470	1600	4.6	0.32	1030	79	350	593	11.5	340	107	89.6	5.5
252	2115	52000	5562	1.60	13356	18.0	1470	1690	4.5	0.32	1030	87	351	544	11.5	341	118	88.6	5.8
252	2130	52000	5562	1.60	13356	18.0	1470	1640	4.6	0.32	1030	82	350	541	11.5	340	111	89.2	5.6
252	2145	52000	5562	1.60	13356	18.0	1470	1600	4.5	0.32	1030	38	348	557	11.5	338	51	95.0	5.5
252	2200	54000	5776	1.60	13356	18.0	1470	1590	4.8	0.31	1030	28	349	563	11.6	343	38	96.3	5.2
252	2215	54000	5776	1.60	13356	18.0	1470	1590	4.8	0.31	1030	22	347	577	11.5	341	30	97.1	5.2
252	2230	54000	5776	1.60	13356	18.0	1470	1560	4.8	0.31	1030	23	339	602	11.4	325	31	97.0	5.1
252	2245	54000	5775	1.60	13356	18.0	1470	1480	4.8	0.31	1030	36	332	664	11.4	319	48	95.3	4.9
252	2300	54000	5775	1.60	13356	18.0	1470	1590	4.6	0.32	1030	34	337	613	11.5	331	46	95.5	5.2
252	2315	54000	5776	1.60	13356	18.0	1470	1460	4.6	0.32	1030	37	330	632	11.5	321	50	95.1	4.8
252	2330	54000	5775	1.60	13356	18.0	1470	1480	4.6	0.32	1030	48	323	684	11.4	311	64	93.8	4.9
252	2345	54000	5775	1.60	13356	18.0	1470	1530	4.5	0.32	1030	61	321	666	11.5	312	83	92.0	5.0

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
253	0	52000	5562	1.60	13356	17.5	1470	1580	4.8	0.30	1030	47	326	643	11.5	317	64	93.8	5.4
253	15	52000	5562	1.60	13356	17.5	1470	1500	4.8	0.30	1030	58	321	618	11.6	315	79	92.3	5.1
253	30	52000	5562	1.60	13356	17.5	1470	1650	4.8	0.30	1030	78	320	697	11.5	311	106	89.8	5.6
253	45	52000	5562	1.60	13356	17.5	1470	1750	4.8	0.30	1030	73	325	646	11.7	323	101	90.2	6.0
253	100	52000	5562	1.60	13356	17.0	1460	1700	4.5	0.33	1030	75	333	559	12.0	347	107	89.6	5.8
253	115	52000	5562	1.60	13356	17.0	1460	2570	4.6	0.30	1030	61	344	529	11.9	349	86	91.6	8.8
253	130	52000	5562	1.60	13356	17.0	1450	3450	4.5	0.30	1030	79	347	502	12.0	355	113	89.0	12
253	145	52000	5562	1.60	13356	17.0	1460	3450	4.5	0.30	1030	56	345	524	11.9	351	79	92.3	12
253	200	52000	5562	1.60	13356	17.5	1470	3370	4.6	0.31	1030	29	344	570	11.6	338	40	96.1	11
253	215	52000	5562	1.60	13356	17.5	1470	3400	4.6	0.31	1030	26	341	593	11.3	324	34	96.7	12
253	230	52000	5562	1.60	13356	17.5	1470	3260	4.6	0.31	1030	19	340	619	11.4	327	25	97.5	11
253	245	52000	5562	1.60	13356	17.5	1470	3380	4.5	0.31	1030	19	336	630	11.0	310	24	97.6	12
253	300	56000	5990	1.60	13356	18.5	1470	3910	4.6	0.33	1030	30	338	639	11.1	315	39	95.2	12
253	315	56000	5990	1.60	13356	18.5	1470	4110	4.5	0.33	1030	37	340	664	10.8	307	47	95.5	13
253	330	56000	5990	1.60	13356	18.5	1470	4030	4.6	0.33	1030	32	335	704	10.8	303	40	96.1	13
253	345	56000	5990	1.60	13356	18.5	1470	4140	4.6	0.33	1030	40	326	702	10.5	286	49	95.3	13
253	400	56000	5990	1.58	13356	20.0	1480	4000	4.6	0.35	1030	41	331	770	10.4	283	50	95.2	13
253	415	55000	5990	1.60	13356	20.0	1480	4010	4.6	0.36	1030	43	321	753	10.5	282	53	94.9	13
253	430	56000	5990	1.60	13356	20.0	1480	2090	4.6	0.36	1030	47	335	662	10.6	297	58	94.4	6.5
253	445	55000	5990	1.60	13356	20.0	1480	2240	4.6	0.35	1030	46	335	659	10.5	294	56	94.5	7.1
253	500	56000	5990	1.60	13356	20.5	1480	1770	4.8	0.36	1030	52	337	624	10.7	302	65	93.7	5.6
253	515	56000	5990	1.60	13356	20.5	1480	1730	4.8	0.35	1030	46	355	600	11.0	328	59	94.3	5.5
253	530	55000	5990	1.60	13356	20.5	1480	1770	4.8	0.36	1030	43	346	611	11.0	319	55	94.6	5.6
253	545	56000	5990	1.50	13356	20.5	1480	1790	4.8	0.36	1030	33	342	606	11.2	322	43	95.8	5.7
253	600	56000	5990	1.60	13356	19.5	1450	1850	4.6	0.35	1030	25	347	618	11.1	323	32	96.8	5.9
253	615	56000	5990	1.60	13356	19.5	1453	.	4.5	0.35	1030	30	345	658	11.1	322	39	95.2	.
253	630	56000	5990	1.60	13356	19.5	1450	.	4.6	0.35	1030	32	345	641	11.1	322	42	96.0	.
253	645	56000	5990	1.60	13356	19.5	1450	.	4.6	0.35	1030	27	342	650	11.0	315	35	95.6	.
253	700	54000	5776	1.60	13356	19.5	1450	2060	4.6	0.35	1030	29	342	635	11.2	322	38	96.3	6.8
253	715	54000	5776	1.60	13356	19.5	1450	2090	4.6	0.33	1030	30	346	635	11.2	325	39	96.2	6.9
253	730	54000	5776	1.60	13356	19.5	1450	2030	4.6	0.35	1030	39	338	652	11.1	315	51	95.1	6.7
253	745	54000	5776	1.60	13356	19.5	1450	1800	4.6	0.35	1030	44	.	638	11.2	.	58	94.4	5.9
253	800	54000	5776	1.60	13356	19.5	1455	1670	4.6	0.35	1030	48	354	683	11.1	330	62	94.0	5.5
253	815	54000	5776	1.60	13356	19.5	1458	.	4.6	0.35	1030	37	354	.	.	.	.	.	.
253	830	54000	5776	1.58	13356	19.5	1453	.	4.5	0.35	1030	40	.	.	.	.	.	.	.
253	845	54000	5776	1.60	13356	19.5	1458	1760	4.6	0.35	1030	32	.	.	.	.	.	.	5.8
253	900	56000	5990	1.60	13356	19.0	1463	1790	4.9	0.32	1030	35	.	.	.	.	.	.	5.7
253	915	56000	5990	1.60	13356	19.0	1463	1780	4.7	0.32	1030	15	.	.	.	.	.	.	5.6
253	930	56000	5990	1.60	13356	19.0	1463	1890	4.9	0.32	1030	.	.	.	.	.	.	.	6.0
253	945	56000	5990	1.60	13356	19.0	1463	2250	4.9	0.32	1030	.	.	.	11.2	.	.	.	7.1

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
253	1000	54000	5776	1.60	13356	19.7	1463	2130	4.6	0.35	1030	.	349	665	11.0	322	.	.	7.0
253	1015	54000	5776	1.60	13356	19.7	1463	2110	4.6	0.35	1030	.	387	655	10.7	347	.	.	6.9
253	1030	54000	5775	1.60	13356	19.7	1463	2100	4.6	0.35	1030	.	381	669	10.7	341	.	.	6.9
253	1045	54000	5776	1.60	13356	19.7	1463	1980	4.6	0.35	1030	.	382	684	10.4	332	.	.	6.5
253	1100	56000	5990	1.60	13356	19.5	1475	1930	4.3	0.34	1030	.	364	747	10.5	320	.	.	6.1
253	1115	56000	5990	1.60	13356	19.5	1475	1960	4.3	0.34	1030	.	384	725	10.6	341	.	.	6.2
253	1130	56000	5990	1.60	13356	19.5	1475	1850	4.3	0.34	1030	.	378	745	10.7	338	.	.	5.9
253	1145	56000	5990	1.60	13356	19.5	1475	1880	4.3	0.34	1030	.	376	766	10.3	324	.	.	5.9
253	1200	56000	5990	1.60	13356	20.0	1465	1830	5.0	0.33	1030	9	379	685	10.7	339	11	98.9	5.8
253	1215	56000	5990	1.60	13356	20.0	1465	1820	5.0	0.33	1030	10	389	652	10.4	339	12	98.8	5.8
253	1230	56000	5990	1.60	13356	20.0	1465	1630	5.0	0.33	1030	15	378	681	10.5	332	18	98.2	5.8
253	1245	56000	5990	1.60	13356	20.0	1465	1820	5.0	0.33	1030	16	393	688	.	.	.	.	5.8
253	1300	58000	6204	1.60	13356	20.0	1470	1950	5.0	0.33	1030	7	.	.	.	.	.	.	5.7
253	1315	58000	6204	1.60	13356	20.0	1470	2040	5.0	0.33	1030	.	.	.	.	.	.	.	6.2
253	1330	58000	6204	1.60	13356	20.0	1470	1980	5.0	0.33	1030	9	.	.	.	.	.	.	5.0
253	1345	58000	6204	1.60	13356	20.0	1470	1850	5.0	0.33	1030	.	.	.	.	.	.	.	5.7
253	1400	60000	6413	1.60	13356	19.7	1492	1830	4.8	0.34	1030	.	.	.	.	.	.	.	5.4
253	1415	60000	6418	1.60	13356	19.7	1492	2050	4.8	0.34	1030	.	389	695	10.4	338	.	.	5.1
253	1430	60000	5418	1.60	13356	19.7	1492	1890	4.8	0.34	1030	.	371	774	10.4	323	.	.	5.5
253	1445	60000	6418	1.60	13356	19.7	1492	1820	4.8	0.34	1030	.	379	743	9.8	312	.	.	5.4
253	1500	60000	6418	1.60	13356	20.7	1520	1790	4.5	0.37	1030	.	374	761	10.1	316	.	.	5.3
253	1515	60000	6418	1.60	13356	20.7	1520	1760	4.5	0.37	1030	.	372	814	9.8	306	.	.	5.2
253	1530	60000	6418	1.60	13356	20.7	1520	1760	4.6	0.37	1030	.	358	776	10.1	303	.	.	5.2
253	1545	60000	6418	1.60	13356	20.7	1520	1670	4.6	0.37	1030	.	372	819	9.8	306	.	.	4.9
253	1600	58000	6204	1.50	13356	20.7	1490	1820	4.8	0.35	1030	7	355	791	9.8	292	8	99.2	5.6
253	1615	58000	6204	1.50	13356	20.7	1490	2000	4.8	0.36	1030	17	381	670	9.9	316	20	98.1	6.1
253	1630	58000	6204	1.60	13356	20.7	1490	1760	4.8	0.35	1030	20	370	737	10.3	319	24	97.7	5.4
253	1645	58000	6204	1.60	13356	20.7	1490	1710	4.8	0.35	1030	20	369	653	10.0	309	23	97.7	5.2
253	1700	62000	6632	1.60	13356	20.7	1520	1750	4.8	0.35	1030	10	370	710	10.2	315	12	98.8	5.0
253	1715	62000	6632	1.60	13356	20.7	1520	1850	4.8	0.35	1030	.	366	712	10.0	307	.	.	5.3
253	1730	62000	6632	1.60	13356	20.7	1520	1770	4.8	0.36	1030	6	353	789	10.0	296	7	99.3	5.1
253	1745	62000	6632	1.60	13356	20.7	1520	1810	4.8	0.35	1030	1	367	769	9.9	305	1	99.9	5.2
253	1800	56000	5990	1.60	13356	21.0	1480	1830	4.8	0.36	1030	18	364	790	10.3	314	22	97.9	5.8
253	1615	56000	5990	1.60	13356	21.0	1480	1720	4.8	0.36	1030	15	364	780	9.9	302	17	98.3	5.4
253	1830	56000	5990	1.60	13356	21.0	1480	1660	4.8	0.36	1030	26	364	826	10.2	311	31	97.0	5.3
253	1845	56000	5990	1.60	13356	21.0	1480	1660	4.8	0.36	1030	21	367	828	10.1	310	25	97.6	5.3
253	1900	56000	5990	1.60	13356	19.2	1510	1650	4.8	0.33	1030	31	354	812	10.1	299	37	96.5	5.2
253	1915	56000	5990	1.60	13356	19.2	1510	1660	4.8	0.33	1030	35	362	792	9.9	301	40	96.1	5.3
253	1930	56000	5990	1.60	13356	19.2	1510	1790	4.8	0.33	1030	66	359	820	10.2	306	78	92.4	5.7
253	1945	56000	5990	1.60	13356	19.2	1510	1920	4.8	0.33	1030	67	366	714	10.3	315	83	92.2	5.1

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
253	2000	56000	5990	1.60	13356	19.2	1510	1850	4.7	0.34	1030	76	375	706	10.4	326	92	91.1	5.9
253	2015	56000	5990	1.60	13356	19.2	1510	1870	4.7	0.34	1030	73	383	629	10.2	327	87	91.6	5.9
253	2030	56000	5990	1.60	13356	19.2	1510	1870	4.7	0.34	1030	100	379	613	10.6	336	123	88.0	5.9
253	2045	56000	5990	1.60	13356	19.2	1510	1830	4.7	0.34	1030	54	383	617	10.5	336	66	93.6	5.8
253	2100	56000	5990	1.60	13356	19.2	1510	.	4.5	0.33	1030	36	375	652	10.5	339	44	95.7	.
253	2115	56000	5990	1.60	13356	19.2	1510	.	4.5	0.33	1030	23	373	684	10.5	328	28	97.3	.
253	2130	56000	5990	1.60	13356	19.2	1510	1790	4.5	0.33	1030	27	375	661	10.7	335	34	95.7	5.7
253	2145	56000	5990	1.60	13356	18.2	1510	1780	4.5	0.33	1030	32	369	655	10.7	330	40	96.1	5.6
253	2200	58000	6204	1.60	13356	18.5	1520	1810	4.8	0.32	1030	39	365	685	10.6	324	48	95.3	5.5
253	2215	58000	6204	1.60	13356	18.5	1520	1810	4.8	0.32	1030	36	362	708	10.6	321	44	95.7	5.5
253	2230	58000	6204	1.60	13356	18.5	1520	1790	4.8	0.32	1030	44	360	659	10.6	319	54	94.7	5.5
253	2245	58000	6204	1.60	13356	18.5	1520	1790	4.8	0.32	1030	56	370	608	10.8	335	71	93.2	5.5
253	2300	56000	5990	1.60	13356	18.5	1530	1680	4.9	0.32	1030	66	368	603	10.8	333	83	91.9	5.3
253	2315	56000	5990	1.60	13356	18.5	1530	1590	4.8	0.32	1030	78	375	591	10.9	343	99	90.4	5.0
253	2330	56000	5990	1.60	13356	18.5	1530	1700	4.8	0.32	1030	80	371	559	11.0	342	103	90.0	5.4
253	2345	55000	5990	1.60	13356	18.5	1530	1870	4.3	0.32	1030	59	377	558	11.0	348	76	92.6	5.3

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
254	0	56000	5990	1.60	13356	18.2	1570	1740	4.8	0.32	1030	50	368	574	10.8	333	63	93.9	5.5
254	15	56000	5990	1.60	13356	18.2	1570	1710	4.8	0.32	1030	50	355	568	10.7	318	62	93.9	5.4
254	30	56000	5990	1.60	13356	18.2	1570	1570	4.8	0.32	1030	50	362	561	10.9	331	64	93.8	5.0
254	45	56000	5990	1.60	13356	18.2	1570	1510	4.8	0.32	1030	45	356	568	10.8	322	57	94.5	4.8
254	100	56000	5990	1.60	13356	17.5	1540	1670	4.8	0.30	1030	46	358	584	10.8	324	58	94.4	5.3
254	115	56000	5990	1.60	13356	17.5	1540	1730	4.8	0.30	1030	66	355	612	10.8	321	83	91.9	5.3
254	130	56000	5990	1.60	13356	17.5	1540	1690	4.8	0.30	1030	62	354	608	10.8	320	78	92.4	5.3
254	145	56000	5990	1.60	13356	17.5	1540	1950	4.8	0.30	1030	57	360	546	10.8	326	72	93.0	6.2
254	200	56000	5990	1.60	13356	18.0	1520	2000	4.8	0.31	1030	64	358	554	10.9	327	81	92.1	6.3
254	215	56000	5990	1.60	13356	18.0	1520	2140	4.8	0.31	1030	67	352	609	10.9	322	85	91.7	6.8
254	230	56000	5990	1.60	13356	18.0	1520	2250	4.8	0.31	1030	64	360	562	10.8	326	81	92.2	7.1
254	245	56000	5990	1.60	13356	18.0	1520	2360	4.8	0.31	1030	58	358	546	10.8	324	73	92.9	7.5
254	300	58000	6204	1.60	13356	18.5	1540	1980	4.8	0.32	1030	65	357	517	10.9	326	83	92.0	6.0
254	315	58000	6204	1.60	13356	18.5	1540	1960	4.8	0.32	1030	65	357	502	10.7	320	81	92.1	6.0
254	330	58000	6204	1.60	13356	18.5	1540	1930	4.8	0.32	1030	53	354	500	10.6	314	65	93.6	5.9
254	345	58000	6204	1.60	13356	18.5	1540	1830	4.8	0.32	1030	53	346	522	10.6	307	65	93.6	5.6
254	400	56000	5990	1.60	13356	18.7	1520	1810	4.5	0.34	1030	43	345	518	10.7	309	54	94.8	5.7
254	415	56000	5990	1.60	13356	18.7	1520	.	4.5	0.34	1030	43	343	538	10.7	307	54	94.8	.
254	430	56000	5990	1.60	13356	18.7	1520	2010	4.5	0.34	1030	49	344	550	10.2	294	58	94.3	6.4
254	445	56000	5990	1.60	13356	18.7	1520	2270	4.6	0.34	1030	71	346	567	10.1	293	84	91.9	7.2
254	500	56000	5990	1.60	13356	18.5	1520	2230	4.6	0.33	1030	78	352	578	10.7	315	97	90.6	7.1
254	515	56000	5990	1.60	13356	18.5	1520	2360	4.6	0.33	1030	78	355	591	10.3	306	94	90.9	7.5
254	530	56000	5990	1.60	13356	18.5	1520	2130	4.6	0.33	1030	67	355	565	10.4	309	81	92.1	6.7
254	545	56000	5990	1.60	13356	18.5	1520	2050	4.6	0.33	1030	67	353	558	10.6	313	83	92.0	6.5
254	600	60000	6418	1.60	13356	18.5	1555	2030	4.9	0.31	1030	45	356	542	10.5	316	56	94.6	6.0
254	615	60000	6418	1.60	13356	18.5	1555	2320	4.9	0.31	1030	45	350	552	10.1	295	53	94.9	6.9
254	630	60000	6418	1.60	13356	18.5	1555	2710	4.9	0.31	1030	51	354	509	10.3	305	61	94.1	8.0
254	645	60000	6418	1.60	13356	18.5	1555	3170	4.9	0.31	1030	45	357	499	10.3	309	54	94.8	9.4
254	700	63000	6739	1.60	13356	19.0	1610	4080	5.0	0.32	1030	46	346	539	10.2	295	55	94.7	11
254	715	63000	6739	1.60	13356	19.0	1610	4170	5.0	0.32	1030	60	355	526	10.0	297	70	93.2	12
254	730	63000	6739	1.60	13356	19.0	1610	4910	5.0	0.32	1030	63	340	604	9.2	265	68	93.4	14
254	745	63000	6739	1.60	13356	19.0	1610	5170	5.0	0.32	1030	52	331	595	9.0	254	56	94.6	15
254	800	70000	7487	1.60	13356	20.2	1585	4670	4.9	0.34	1030	58	309	607	.	.	.	.	12
254	815	70000	7487	1.60	13356	20.2	1585	5010	4.9	0.34	1030	52	.	.	.	.	.	.	13
254	830	70000	7487	1.60	13356	20.2	1585	4790	4.9	0.34	1030	81	.	.	.	.	.	.	12
254	845	70000	7487	1.60	13356	20.2	1585	4760	4.9	0.34	1030	138	.	.	.	.	.	.	12
254	900	65000	6952	1.60	13356	21.2	1510	4280	4.5	0.39	1030	166	.	.	.	.	.	.	12
254	915	65000	6952	1.60	13356	21.2	1510	4080	4.5	0.39	1030	.	308	.	8.7	231	.	.	11
254	930	65000	6952	1.60	13356	21.2	1510	4280	4.5	0.39	1030	.	293	729	8.5	216	.	.	12
254	945	65000	6952	1.60	13356	21.2	1510	4720	4.5	0.39	1030	.	335	626	9.0	257	.	.	13

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
254	1000	50000	5348	1.60	13356	20.7	1475	3360	4.5	0.38	1030	.	320	769	9.2	250	.	.	12
254	1015	50000	5348	1.60	13356	20.7	1475	1930	4.5	0.38	1030	28	334	798	9.4	265	31	97.0	6.8
254	1030	50000	5348	1.60	13356	20.7	1475	2200	4.5	0.38	1030	.	330	828	9.7	269	.	.	7.8
254	1045	50000	5348	1.60	13356	20.7	1475	2390	4.5	0.38	1030	.	358	770	9.8	295	.	.	8.5
254	1100	60000	6418	1.60	13356	21.5	1490	2210	5.0	0.36	1030	.	342	776	10.2	292	.	.	6.5
254	1115	60000	6418	1.60	13356	21.5	1490	2220	5.0	0.36	1030	.	353	709	10.0	296	.	.	5.5
254	1130	60000	6418	1.60	13356	21.5	1490	2240	5.0	0.36	1030	.	349	720	10.3	301	.	.	6.6
254	1145	60000	6418	1.60	13356	21.5	1490	2250	5.0	0.36	1030	.	359	728	10.1	304	.	.	6.6
254	1200	58000	6204	1.60	13356	20.7	1450	.	4.6	0.37	1030	.	346	747	11.0	319	.	.	.
254	1215	58000	6204	1.60	13356	20.7	1450	.	4.6	0.37	1030	.	357	725	10.3	308	.	.	.
254	1230	58000	6204	1.60	13356	20.7	1450	2250	4.6	0.37	1030	.	339	759	10.5	298	.	.	6.9
254	1245	58000	6204	1.60	13356	20.7	1450	2210	4.5	0.37	1030	.	365	766	10.0	318	.	.	6.8
254	1300	58000	6204	1.60	13356	21.0	1470	2150	4.5	0.38	1030	.	354	891	10.3	305	.	.	6.5
254	1315	58000	6204	1.60	13356	21.0	1470	2130	4.5	0.38	1030	.	361	827	10.5	317	.	.	6.5
254	1330	58000	6204	1.60	13356	21.0	1470	2080	4.5	0.38	1030	.	365	738	10.6	324	.	.	6.4
254	1345	58000	6204	1.60	13356	21.0	1470	2210	4.5	0.38	1030	.	369	642	10.5	324	.	.	6.8
254	1400	58000	6204	1.60	13356	21.5	1470	2620	4.3	0.40	1030	9	359	676	10.3	309	11	99.0	8.0
254	1415	58000	6204	1.60	13356	21.5	1470	2350	4.5	0.40	1030	8	370	718	10.0	310	9	99.1	7.2
254	1430	58000	6204	1.60	13356	21.5	1470	2460	4.5	0.40	1030	.	363	823	10.1	307	.	.	7.5
254	1445	58000	6204	1.60	13356	21.5	1470	2540	4.5	0.40	1030	.	358	806	10.1	303	.	.	7.8
254	1500	56000	5990	1.60	13356	20.2	1490	2280	4.2	0.40	1030	.	367	840	10.3	316	.	.	7.2
254	1515	56000	5990	1.60	13356	20.2	1490	2390	4.2	0.40	1030	7	353	831	9.8	290	8	99.2	7.6
254	1530	56000	5990	1.60	13356	20.2	1490	2350	4.2	0.40	1030	.	350	820	10.0	293	.	.	7.4
254	1545	56000	5990	1.60	13356	20.2	1490	2320	4.2	0.40	1030	.	337	850	10.0	282	.	.	7.3
254	1600	52000	5562	1.60	13356	21.0	1510	2530	3.0	0.58	1030	13	313	915	9.6	257	15	98.6	8.5
254	1615	52000	5562	1.60	13356	21.0	1510	2250	3.0	0.58	1030	16	336	929	9.6	272	18	98.3	7.7
254	1630	52000	5562	1.60	13356	21.0	1510	2180	3.0	0.58	1030	22	295	957	8.5	217	23	97.8	7.4
254	1645	52000	5562	1.60	13356	21.0	1510	2430	3.0	0.58	1030	13	289	0	8.6	215	13	98.7	8.3
254	1700	60000	6418	1.60	13356	21.5	1550	1820	4.0	0.45	1030	57	248	0	8.3	180	58	94.4	5.4
254	1715	60000	6418	1.60	13356	21.5	1550	1500	4.0	0.45	1030	56	226	0	7.6	155	54	94.8	4.4
254	1730	60000	6418	1.60	13356	21.5	1550	1170	4.0	0.45	1030	113	218	0	7.7	151	109	89.4	3.5
254	1745	60000	6418	1.60	13356	21.5	1550	1410	4.0	0.45	1030	157	288	0	8.3	209	158	84.6	4.2
254	1800	62000	6632	1.60	13356	21.5	1495	1590	4.5	0.39	1030	155	285	975	8.6	212	160	84.4	4.5
254	1815	62000	6632	1.60	13356	21.5	1495	1610	4.6	0.39	1030	169	323	900	9.4	257	187	81.9	4.6
254	1830	62000	6632	1.60	13356	21.5	1495	1520	4.5	0.39	1030	251	352	839	9.7	287	285	72.3	4.6
254	1845	62000	6632	1.60	13356	21.5	1495	1620	4.6	0.39	1030	246	339	937	9.6	274	277	73.1	4.6
254	1900	62000	6632	1.60	13356	19.7	1530	1540	4.5	0.35	1030	251	337	887	9.5	272	283	72.6	4.4
254	1915	62000	6632	1.60	13356	19.7	1530	1540	4.6	0.35	1030	209	341	863	9.7	278	237	77.0	4.4
254	1930	62000	6632	1.60	13356	19.7	1530	2160	4.6	0.35	1030	141	343	880	9.8	282	162	84.3	6.2
254	1945	62000	6632	1.60	13356	19.7	1530	2280	4.6	0.35	1030	77	335	853	9.8	276	88	91.4	6.5

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
254	2000	60000	6418	1.60	13356	19.0	1540	2410	4.9	0.33	1030	86	343	761	9.9	285	99	90.3	7.1
254	2015	60000	6418	1.60	13356	19.0	1540	2430	4.8	0.33	1030	92	330	740	9.6	267	104	89.9	7.2
254	2030	60000	6418	1.60	13356	19.0	1540	2390	4.8	0.33	1030	97	343	734	9.7	280	110	89.3	7.1
254	2045	60000	6418	1.60	13356	19.0	1540	2340	4.8	0.33	1030	72	329	720	9.8	271	83	92.0	5.9
254	2100	60000	6418	1.60	13356	19.0	1540	2070	4.8	0.33	1030	76	335	762	9.6	271	86	91.7	6.1
254	2115	60000	6418	1.60	13356	19.0	1540	2350	4.8	0.33	1030	81	332	822	9.6	268	91	91.1	6.9
254	2130	60000	6418	1.60	13356	19.0	1540	2610	4.8	0.33	1030	91	348	773	10.1	294	107	89.6	7.7
254	2145	60000	6418	1.60	13356	19.0	1540	2570	4.8	0.33	1030	100	338	787	9.8	278	115	88.9	7.6
254	2200	60000	6418	1.60	13356	19.0	1540	2360	4.5	0.34	1030	119	327	736	9.7	257	135	86.9	7.3
254	2215	60000	6418	1.60	13356	19.0	1540	2580	4.5	0.34	1030	114	330	720	10.0	277	133	87.1	7.6
254	2230	60000	6418	1.60	13356	19.0	1540	2780	4.6	0.34	1030	100	315	730	9.5	253	113	89.1	8.2
254	2245	60000	6418	1.60	13356	19.0	1540	2780	4.6	0.34	1030	114	335	748	9.9	278	132	87.2	8.2
254	2300	60000	6418	1.60	13356	19.0	1530	2430	4.7	0.33	1030	107	338	767	10.1	286	126	87.8	7.2
254	2315	60000	6418	1.60	13356	19.0	1530	2470	4.7	0.33	1030	111	327	767	9.8	269	127	87.7	7.3
254	2330	60000	6418	1.60	13356	19.0	1530	2440	4.7	0.33	1030	146	335	767	10.0	281	170	83.5	7.2
254	2345	60000	6418	1.60	13356	19.0	1530	2460	4.7	0.33	1030	127	335	745	10.1	283	150	85.5	7.3

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY   EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
255	0	60000	6428	1.96	13334	19.5	1520	2550	4.9	0.33	1264	116	337	707	10.1	285	137	89.2	6.1
255	15	60000	6428	1.96	13334	19.5	1520	2450	4.9	0.33	1264	114	328	714	9.9	273	132	89.6	5.9
255	30	60000	6428	1.95	13334	19.5	1520	2710	4.9	0.33	1264	115	344	659	10.2	294	137	89.2	6.5
255	45	60000	6428	1.96	13334	19.5	1520	2920	4.9	0.33	1264	109	335	647	10.0	281	127	89.9	7.0
255	100	58000	6330	1.75	13039	19.5	1520	2960	5.0	0.32	1150	108	336	635	10.2	293	131	88.6	8.1
255	115	58000	6330	1.75	13039	19.5	1520	2330	5.0	0.32	1150	89	342	648	10.1	295	107	90.7	6.4
255	130	58000	6330	1.75	13039	19.5	1520	2680	5.0	0.32	1150	104	335	649	10.0	286	124	89.2	7.3
255	145	58000	6330	1.75	13039	19.5	1520	2610	5.0	0.32	1150	92	338	622	9.9	285	109	90.6	7.1
255	200	60000	6639	1.99	12910	19.5	1520	2310	4.9	0.33	1325	95	339	674	10.0	294	115	91.3	5.3
255	215	60000	6639	1.99	12910	19.5	1520	2140	4.9	0.33	1325	87	339	634	10.1	297	106	92.0	4.9
255	230	60000	6639	1.99	12910	19.5	1520	2480	4.9	0.33	1325	84	341	665	10.1	298	102	92.3	5.7
255	245	60000	6639	1.99	12910	19.5	1520	2050	4.9	0.33	1325	64	339	644	10.1	297	78	94.1	4.7
255	300	56000	6113	1.82	13087	19.2	1520	2070	4.9	0.33	1196	90	354	669	9.9	300	106	91.1	5.6
255	315	56000	6113	1.82	13087	19.2	1520	2120	4.9	0.33	1196	85	352	605	10.0	301	101	91.5	5.8
255	330	56000	6113	1.82	13087	19.2	1520	2350	4.9	0.33	1196	77	342	580	10.1	295	93	92.3	6.4
255	345	56000	6113	1.82	13087	19.2	1520	2810	4.9	0.33	1196	67	335	584	10.4	297	83	93.1	7.7
255	400	56000	6126	1.75	13050	19.2	1520	.	4.5	0.34	1159	76	342	567	10.2	299	92	92.0	.
255	415	56000	6126	1.75	13050	19.2	1520	.	4.5	0.34	1159	45	359	578	10.0	309	55	95.3	.
255	430	56000	6126	1.76	13050	19.2	1520	2680	4.5	0.34	1159	49	358	602	5.9	304	58	95.0	7.5
255	445	56000	6126	1.76	13050	19.2	1520	2570	4.6	0.34	1159	50	344	591	10.0	295	60	94.9	7.2
255	500	60000	6570	1.78	13046	20.5	1500	2750	4.6	0.37	1173	51	322	682	9.7	269	59	94.9	7.1
255	515	60000	6570	1.78	13046	20.5	1500	2840	4.5	0.37	1173	44	330	593	10.5	297	55	95.3	7.4
255	530	60000	6570	1.78	13046	20.5	1500	.	4.5	0.37	1173	35	328	654	9.1	260	39	96.7	.
255	545	60000	6570	1.78	13046	20.5	1500	.	4.6	0.37	1173	28	271	512	7.8	193	28	97.6	.
255	600	64000	7004	1.62	13033	20.0	1520	2470	4.9	0.34	1067	72	367	648	9.4	298	81	92.4	6.6
255	615	64000	7004	1.62	13033	20.0	1520	2110	4.9	0.34	1067	79	352	591	9.6	295	93	91.3	5.6
255	630	64000	7004	1.62	13053	20.0	1520	2230	4.9	0.34	1067	75	342	635	9.9	291	89	91.7	6.0
255	645	64000	7004	1.62	13033	20.0	1520	2250	4.9	0.34	1067	70	335	[illegible]	9.8	282	82	92.3	5.3
255	700	64000	7083	1.85	12908	20.7	1525	2550	4.5	0.37	1232	56	351	668	9.2	284	63	94.9	5.9
255	715	64000	7083	1.85	12908	20.7	1525	4040	4.6	0.37	1232	12	347	662	8.5	264	13	99.0	9.3
255	730	64000	7083	1.85	12908	20.7	1525	4900	4.5	0.37	1232	25	341	638	8.4	258	26	97.9	11
255	745	64000	7083	1.85	12908	20.7	1525	4890	4.6	0.37	1232	44	306	741	8.1	225	45	95.3	11
255	800	66000	7093	1.81	13292	21.5	1510	4900	4.6	0.39	1171	44	293	780	8.2	212	44	95.2	12
255	815	66000	7093	1.81	13292	21.5	1510	5030	4.6	0.39	1171	62	276	841	7.9	195	61	94.8	12
255	830	65000	7093	1.81	13292	21.5	1510	4070	4.6	0.39	1171	46	262	954	7.8	184	45	96.2	9.6
255	845	65000	7093	1.81	13292	21.5	1510	2630	4.6	0.39	1171	57	287	889	8.3	209	58	93.1	6.2
255	900	65000	6914	1.58	13431	21.5	1520	2800	4.6	0.39	1011	63	.	.	.	.	.	.	7.8
255	915	65000	6914	1.58	13431	21.5	1520	2800	4.6	0.39	1011	69	.	.	.	.	.	.	7.8
255	930	65000	6914	1.58	13431	21.5	1520	2800	4.6	0.39	1011	109	.	.	.	.	.	.	7.8
255	945	65000	6914	1.58	13431	21.5	1520	2910	4.6	0.39	1011	76	.	.	.	.	.	.	8.1

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
255	1000	60000	6521	1.63	13144	22.5	1490	3140	4.3	0.42	1066	.	.	.	.	.	.	.	9.0
255	1015	60000	6521	1.63	13144	22.5	1490	3630	4.5	0.42	1066	.	.	.	.	.	.	.	13
255	1030	60000	6521	1.63	13144	22.5	1490	3010	4.5	0.42	1066	.	.	.	.	.	.	.	8.5
255	1045	60000	6521	1.63	13144	22.5	1490	2410	4.5	0.42	1066	.	.	.	.	.	.	.	5.9
255	1100	62000	6529	1.74	13351	22.0	1500	2650	4.2	0.44	1120	.	.	.	.	.	.	.	7.0
255	1115	62000	6529	1.74	13361	22.0	1500	2580	4.2	0.44	1120	.	289	884	8.2	208	.	.	7.0
255	1130	62000	6529	1.74	13361	22.0	1500	2410	4.2	0.44	1120	.	290	895	8.3	210	.	.	6.3
255	1145	62000	6529	1.74	13351	22.0	1500	2340	4.2	0.44	1120	.	282	903	8.2	203	.	.	5.2
255	1200	62000	6762	1.85	13038	22.0	1500	2220	4.2	0.44	1214	.	307	957	8.6	232	.	.	5.4
255	1215	62000	6762	1.85	13098	22.0	1500	2190	4.2	0.44	1214	72	278	899	8.1	202	73	94.0	5.3
255	1230	62000	6762	1.85	13098	22.0	1500	2300	4.2	0.44	1214	68	299	897	8.5	225	71	94.1	5.6
255	1245	62000	6762	1.85	13038	22.0	1500	2180	4.2	0.44	1214	60	296	775	8.5	222	63	94.8	5.3
255	1300	62000	6569	1.67	13232	22.0	1510	2090	4.4	0.42	1081	65	304	793	8.5	225	67	93.8	5.7
255	1315	62000	6569	1.67	13282	22.0	1510	2020	4.4	0.42	1081	57	292	815	8.3	213	58	94.6	5.5
255	1330	62000	6569	1.67	13232	22.0	1510	2110	4.4	0.42	1081	57	300	932	8.4	220	58	94.6	5.7
255	1345	62000	6569	1.67	13282	22.0	1510	2230	4.4	0.42	1081	13	297	934	8.3	217	13	98.8	6.1
255	1400	58000	6279	1.74	13195	22.0	1510	2390	3.9	0.47	1134	29	293	972	8.1	212	29	97.4	6.6
255	1415	58000	6279	1.74	13195	22.0	1510	3020	3.9	0.47	1134	30	341	618	9.3	272	33	97.1	8.4
255	1430	58000	6279	1.74	13195	22.0	1510	2310	3.9	0.47	1134	65	335	901	9.2	265	72	93.7	[illegible]
255	1445	58000	6279	1.74	13195	22.0	1510	2420	3.9	0.47	1134	61	267	866	7.8	188	60	94.7	6.7
255	1500	62000	6620	1.63	13379	22.0	1500	2720	4.0	0.46	1048	.	288	990	8.0	204	.	.	7.6
255	1515	62000	6620	1.63	13379	22.0	1500	2620	4.0	0.46	1048	46	281	991	7.6	193	44	95.8	7.4
255	1530	62000	6620	1.63	13379	22.0	1500	2610	4.0	0.46	1048	37	282	991	7.6	193	35	96.6	7.3
255	1545	62000	6620	1.63	13379	22.0	1500	2820	4.0	0.46	1048	83	302	891	8.1	215	82	92.1	7.9
255	1600	58000	6252	1.60	13252	22.0	1480	2540	4.0	0.45	1038	105	296	952	8.0	211	104	89.9	7.7
255	1615	58000	6252	1.60	13232	22.0	1480	2530	4.0	0.46	1038	168	322	980	8.5	239	174	83.3	7.7
255	1630	58000	6252	1.60	13252	22.0	1480	2580	4.0	0.45	1038	146	334	939	8.3	255	156	85.0	7.8
255	1645	58000	6252	1.60	13252	22.0	1480	2960	4.0	0.45	1038	113	328	890	8.7	247	119	88.6	9.0
255	1700	60000	6605	1.63	12975	22.5	1480	3110	4.0	0.47	1080	105	319	974	8.6	244	112	89.7	8.8
255	1715	60000	6605	1.63	12976	22.5	1480	2830	4.0	0.47	1080	66	316	858	8.4	238	69	93.6	8.0
255	1730	60000	6605	1.63	12976	22.5	1480	2920	4.0	0.47	1080	34	324	993	8.5	246	36	96.7	8.2
255	1745	60000	6605	1.63	12976	22.5	1480	3140	4.0	0.47	1080	38	303	993	8.4	228	40	96.3	9.8
255	1800	60000	6542	1.61	13102	22.0	1500	3280	4.0	0.46	1057	53	324	994	8.7	247	56	94.7	9.4
255	1815	60000	6542	1.61	13102	22.0	1500	3380	4.0	0.46	1057	61	281	994	7.9	201	61	94.2	9.7
255	1830	60000	6542	1.61	13102	22.0	1500	2920	4.0	0.46	1057	70	309	993	8.3	228	72	93.2	8.4
255	1845	60000	6542	1.61	13102	22.0	1500	2650	4.0	0.46	1057	64	302	994	8.2	221	65	93.8	7.6
255	1900	62000	6750	1.65	13122	22.2	1480	2570	4.0	0.46	1088	70	318	955	8.5	238	73	93.3	7.3
255	1915	62000	6750	1.65	13122	22.2	1480	2650	4.0	0.46	1088	73	308	995	8.3	227	75	93.1	7.2
255	1930	62000	6750	1.65	13122	22.2	1480	2620	4.0	0.46	1088	95	318	895	8.5	238	99	93.9	7.1
255	1945	62000	6750	1.65	13122	22.2	1480	2530	4.0	0.46	1088	76	312	995	8.2	228	77	92.8	6.8

TABLE A-1 (continued)

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                              GEORGETOWN UNIVERSITY                         EMISSIONS SUMMARY

     15 MIN. DATA

DAY HOUR  TOT       COAL  SULFR HEAT  BED    BED  LIME SUP. RES.  E       SO2 NOX   CO   O2     E    E   EFF  CA/S
          BLR LD    FEED   (%)  BTU   DEPTH  TEMP FEED      TIME  SO2     PPM PPM   PPM  %      NOX  SO2  %
-----------------------------------------------------------------------------------------------------------------------

255 2000 58000      6183  1.64  13401 22.2   1500 2410 4.1  0.45 1052      99  335  861  8.8    252  104  90.1 7.2
255 2015 58000      6183  1.64  13401 22.2   1500 2500 4.1  0.45 1052      81  330  934  8.7    246   84  92.0 7.5
255 2030 58000      6183  1.64  13401 22.2   1500 2510 4.1  0.45 1052     108  335  932  9.0    257  115  89.1 7.5
255 2045 58000      6183  1.64  13401 22.2   1500 2470 4.1  0.45 1052      73  324  987  8.7    242   76  92.8 7.4
255 2100 60000      6537  1.60  13113 23.0   1490    . 4.0  0.47 1049      52  330  974  8.9    256   56  94.6  .
255 2115 60000      6537  1.60  13113 23.0   1490    . 4.0  0.47 1049      36  307  997  8.4    228   37  96.4  .
255 2130 60000      6537  1.60  13113 23.0   1490 2650 4.0  0.47 1049      35  315  997  8.5    235   37  96.5 7.7
255 2145 60000      6537  1.60  13113 23.0   1490 2680 4.0  0.47 1049      52  308  993  8.4    229   54  94.9 7.8
255 2200 60000      6588  1.65  13011 22.2   1490 2850 4.2  0.44 1097      64  320  995  8.3    246   58  93.3 7.9
255 2215 60000      6588  1.66  13011 22.2   1490 2760 4.2  0.44 1097      77  303  998  8.5    233   81  92.6 7.7
255 2230 60000      6588  1.65  13011 22.2   1490 2760 4.2  0.44 1097      97  319  978  8.8    247  105  90.5 7.7
255 2245 60000      6588  1.65  13011 22.2   1490 2870 4.2  0.44 1097     124  320  997  8.7    245  133  87.9 8.0
255 2300 60000      6490  1.57  13208 22.7   1490 2770 4.0  0.47 1022     101  319  980  8.8    244  107  89.5 8.2
255 2315 60000      6490  1.57  13208 22.7   1490 2620 4.0  0.47 1022      94  309  945  8.4    228   97  90.5 7.8
255 2330 60000      6490  1.57  13208 22.7   1490    . 4.0  0.47 1022      61  322  931  8.7    244   64  93.7  .
255 2345 60000      6490  1.57  13208 22.7   1490    . 4.0  0.47 1022      54  317  847  8.8    242   57  94.4  .
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TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
256	0	60000	6504	1.83	13179	23.5	1480	2450	4.2	0.47	1194	49	323	997	8.6	243	51	95.7	6.2
256	15	60000	6504	1.83	13179	23.5	1480	2320	4.2	0.47	1194	48	307	997	8.3	225	49	95.9	5.9
256	30	60000	6504	1.83	13179	23.5	1480	2300	4.2	0.47	1194	56	318	975	8.4	235	58	95.2	5.9
256	45	60000	6504	1.83	13179	23.5	1480	2240	4.2	0.47	1194	58	301	0	8.3	221	59	95.0	5.7
256	100	60000	6504	1.83	13179	23.7	1490	2260	4.2	0.47	1194	69	303	0	8.2	221	70	94.1	5.8
256	115	60000	6504	1.83	13179	23.7	1490	2240	4.2	0.47	1194	73	308	989	8.5	230	76	93.6	5.7
256	130	60000	6504	1.83	13179	23.7	1490	2190	4.2	0.47	1194	71	330	937	8.3	242	73	93.9	5.6
256	145	60000	6504	1.83	13179	23.7	1490	2360	4.2	0.47	1194	80	343	805	8.3	252	82	93.1	6.0
256	200	60000	6504	1.83	13179	23.5	1490	2490	4.3	0.45	1194	90	339	827	8.6	255	94	92.1	6.3
256	215	60000	6504	1.83	13179	23.5	1490	2090	4.3	0.45	1194	43	327	864	8.6	245	45	96.2	5.3
256	230	60000	6504	1.83	13179	23.5	1490	2120	4.3	0.45	1194	43	326	915	8.6	245	45	96.2	5.4
256	245	60000	6504	1.83	13179	23.5	1490	2040	4.3	0.45	1194	10	327	855	8.5	244	10	99.1	5.2
256	300	62000	6721	1.83	13179	23.5	1500	2030	4.2	0.47	1194	18	329	875	8.2	240	18	98.5	5.0
256	315	62000	6721	1.83	13179	23.5	1500	2100	4.2	0.47	1194	27	332	900	8.4	246	28	97.7	5.2
255	330	62000	6721	1.83	13179	23.5	1500	1780	4.2	0.47	1194	41	330	871	8.7	250	43	96.4	4.4
255	345	62000	6721	1.83	13179	23.5	1500	1720	4.2	0.47	1194	37	321	844	8.5	240	38	95.8	4.2
256	400	62000	6721	1.83	13179	23.5	1500	1750	4.2	0.47	1194	24	351	839	8.7	266	25	97.9	4.3
256	415	62000	6721	1.83	13179	23.5	1500	1790	4.2	0.47	1194	11	364	841	8.5	272	15	98.8	4.4
255	430	62000	6721	1.83	13179	23.5	1500	1780	4.2	0.47	1194	27	358	860	8.5	269	28	97.6	4.4
256	445	62000	6721	1.83	13179	23.5	1500	1780	4.2	0.47	1194	31	334	905	8.7	253	33	97.3	4.4
256	500	60000	6504	1.83	13179	23.0	1500	1810	4.5	0.43	1194	28	329	987	8.7	250	30	97.5	4.6
256	515	60000	6504	1.83	13179	23.0	1500	1780	4.5	0.43	1194	7	341	824	8.9	263	8	99.4	4.5
256	530	60000	6504	1.83	13179	23.0	1500	1860	4.5	0.43	1194	3	367	709	8.9	283	3	99.7	4.7
256	545	60000	6504	1.83	13179	23.0	1500	1900	4.5	0.43	1194	12	365	669	8.8	295	13	98.9	4.8
256	600	62000	6721	1.83	13179	23.0	1500	1940	4.5	0.43	1194	32	389	732	8.9	300	34	97.1	4.8
256	615	62000	6721	1.83	13179	23.0	1500	.	4.5	0.43	1194	15	356	774	8.9	275	16	98.7	.
255	630	62000	6721	1.83	13179	23.0	1500	.	4.5	0.43	1194	3	345	843	9.0	268	3	99.7	.
256	645	62000	6721	1.83	13179	23.0	1500	.	4.5	0.43	1194	.	341	830	9.3	263	.	.	.
256	700	65000	7046	1.83	13179	22.5	1490	.	4.5	0.40	1194	.	355	815	8.9	274	.	.	.
256	715	65000	7046	1.83	13179	22.5	1490	.	4.6	0.40	1194	.	368	794	8.6	277	.	.	.
256	730	65000	7046	1.83	13179	22.5	1490	.	4.5	0.40	1194	2	381	810	8.9	294	2	99.8	.
256	745	65000	7046	1.83	13179	22.5	1490	.	4.6	0.40	1194	17	327	902	8.8	250	18	96.5	.
256	800	68000	7371	1.83	13179	23.0	1500	.	4.6	0.41	1194	10	329	827	8.7	250	11	99.1	.
256	815	68000	7371	1.83	13179	23.0	1500	.	4.6	0.41	1194	.	320	821	8.6	241	.	.	.
256	830	68000	7371	1.83	13179	23.0	1500	.	4.6	0.41	1194	.	331	830	8.9	255	.	.	.
256	845	68000	7371	1.83	13179	23.0	1500	.	4.6	0.41	1194	.	328	806	8.8	251	.	.	.
256	900	66000	7154	1.83	13179	23.7	1530	.	4.7	0.42	1194	41	340	916	8.8	260	44	96.3	.
256	915	66000	7154	1.83	13179	23.7	1530	.	4.7	0.42	1194	58	.	.	.	.	.	.	.
256	930	66000	7154	1.83	13179	23.7	1530	.	4.7	0.42	1194	75	.	.	.	.	.	.	.
256	945	66000	7154	1.83	13179	23.7	1530	.	4.7	0.42	1194	86	.	.	.	.	.	.	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY   EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
256	1000	64000	6937	1.83	13179	23.5	1540	.	4.4	0.44	1194	85	.	.	.	.	.	.	.
256	1015	64000	6937	1.83	13179	23.5	1540	.	4.4	0.44	1194	16	.	.	.	.	.	.	.
256	1030	64000	6937	1.83	13179	23.5	1540	.	4.4	0.44	1194	.	.	.	.	.	.	.	.
256	1045	64000	6937	1.83	13179	23.5	1540	.	4.4	0.44	1194	.	.	.	.	.	.	.	.
256	1100	64000	6937	1.83	13179	23.0	1510	2120	4.3	0.44	1194	.	451	849	9.1	354	.	.	5.1
256	1115	64000	6937	1.83	13179	23.0	1510	2100	4.3	0.44	1194	.	398	834	8.6	300	.	.	5.0
256	1130	64000	6937	1.83	13179	23.0	1520	2140	4.3	0.44	1194	.	348	810	9.0	271	.	.	5.1
256	1145	64000	6937	1.83	13179	23.0	1510	2120	4.3	0.44	1194	.	328	827	8.5	245	.	.	5.1
256	1200	64000	6937	1.83	13179	23.0	1490	2110	4.4	0.43	1194	26	347	881	8.7	263	27	97.7	5.0
256	1215	64000	6937	1.83	13179	23.0	1490	2020	4.4	0.43	1194	65	326	845	8.5	243	68	94.3	4.8
256	1230	64000	6937	1.83	13179	23.0	1490	1980	4.4	0.43	1194	52	348	885	8.9	268	56	95.3	4.7
256	1245	64000	6937	1.83	13179	23.0	1490	2070	4.4	0.43	1194	42	330	972	8.5	245	44	96.3	4.9
256	1300	64000	6937	1.83	13179	23.0	1540	.	4.4	0.44	1194	75	335	937	8.4	248	77	93.5	.
256	1315	64000	6937	1.83	13179	23.0	1540	.	4.4	0.44	1194	59	332	822	8.6	250	62	94.8	.
256	1330	64000	6937	1.83	13179	23.0	1540	2120	4.4	0.44	1194	59	345	775	8.6	260	62	94.8	5.1
256	1345	64000	6937	1.83	13179	23.0	1540	2320	4.4	0.44	1194	68	343	751	8.7	263	72	94.0	5.5
256	1400	64000	6814	1.71	13418	23.0	1510	2080	4.6	0.41	1096	90	336	822	8.4	244	91	91.7	5.4
256	1415	64000	6814	1.71	13418	23.0	1510	1930	4.6	0.41	1096	53	347	807	8.5	254	54	95.1	5.0
256	1430	64000	6814	1.71	13418	23.0	1510	1940	4.5	0.41	1096	45	347	874	.	.	.	.	5.0
256	1445	64000	6814	1.71	13418	23.0	1510	.	4.5	0.41	1095	39	333	930	.	.	.	.	.
256	1500	60000	6605	1.89	12977	22.7	1520	1990	4.1	0.46	1252	65	341	997	.	.	.	.	4.8
256	1515	60000	6605	1.89	12977	22.7	1520	1950	4.1	0.46	1252	54	335	990	.	.	.	.	4.7
256	1530	60000	6605	1.89	12977	22.7	1520	2110	4.1	0.45	1252	66	323	0	8.5	245	70	94.4	5.1
256	1545	60000	6605	1.89	12977	22.7	1520	2070	4.1	0.46	1252	58	341	0	8.8	263	63	95.0	5.0
256	1600	62000	6898	2.12	12841	22.7	1520	2030	4.5	0.42	1419	95	318	0	8.3	240	100	93.0	4.2
256	1615	62000	6898	2.12	12841	22.7	1520	2020	4.5	0.42	1419	57	339	0	8.5	259	61	95.7	4.2
256	1630	62000	6898	2.12	12841	22.7	1520	1990	4.5	0.42	1419	.	316	0	7.9	231	.	.	4.1
256	1645	62000	6898	2.12	12841	22.7	1520	1970	4.5	0.42	1419	.	342	996	8.5	264	.	.	4.1
256	1700	62000	6873	2.56	12896	22.5	1520	1930	4.5	0.40	1708	.	340	948	8.5	260	.	.	3.3
256	1715	62000	6873	2.55	12886	22.5	1520	1940	4.6	0.40	1708	.	361	824	9.0	287	.	.	3.3
256	1730	62000	6873	2.56	12896	22.5	1520	1700	4.5	0.40	1708	.	351	829	8.9	277	.	.	2.9
256	1745	62000	6873	2.56	12896	22.5	1520	1550	4.5	0.40	1708	.	361	787	9.2	292	.	.	2.7
256	1800	64000	6907	2.05	13237	20.5	1520	1460	4.9	0.36	1332	.	343	861	8.9	263	.	.	3.1
256	1815	64000	6907	2.05	13237	20.5	1520	1420	4.8	0.36	1332	.	346	854	9.1	270	.	.	3.0
256	1830	64000	6907	2.05	13237	20.5	1520	1410	4.8	0.36	1332	.	349	913	8.9	268	.	.	3.0
256	1845	64000	6907	2.05	13237	20.5	1520	1320	4.8	0.36	1332	.	349	893	9.5	282	.	.	2.8
256	1900	60000	6476	1.95	13236	20.0	1500	1740	4.5	0.36	1273	.	330	0	8.9	253	.	.	4.2
256	1915	60000	6476	1.95	13236	20.0	1500	1910	4.5	0.36	1273	.	347	864	9.4	278	.	.	4.6
256	1930	60000	6476	1.95	13236	20.0	1500	2190	4.6	0.36	1273	.	337	989	8.8	257	.	.	5.2
256	1945	60000	6476	1.96	13236	20.0	1500	2160	4.5	0.36	1273	.	350	947	9.2	276	.	.	5.2

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
256	2000	60000	6527	1.85	13132	20.0	1530	2520	4.5	0.36	1211	.	343	827	9.1	272	.	.	6.3
256	2015	60000	6527	1.85	13132	20.0	1530	3540	4.6	0.36	1211	.	359	660	9.4	290	.	.	8.3
256	2030	60000	6527	1.85	13132	20.0	1530	3410	4.6	0.36	1211	.	346	692	9.3	277	.	.	8.6
256	2045	60000	6527	1.85	13132	20.0	1530	3490	4.6	0.36	1211	.	353	669	9.4	285	.	.	8.8
256	2100	60000	6525	2.01	12936	21.0	1510	3640	4.5	0.39	1336	72	344	733	9.1	275	80	94.0	8.3
256	2115	60000	6526	2.01	12936	21.0	1510	3540	4.5	0.39	1336	30	341	782	9.2	275	34	97.5	8.1
256	2130	60000	6525	2.01	12936	21.0	1510	3530	4.5	0.39	1336	50	339	813	9.3	276	57	95.8	8.0
256	2145	60000	6526	2.01	12936	21.0	1510	3870	4.5	0.39	1336	37	344	838	9.2	277	42	96.9	8.8
256	2200	60000	6467	1.92	13254	21.5	1510	3730	4.3	0.41	1246	51	339	882	9.1	264	55	95.6	9.1
256	2215	60000	6467	1.92	13254	21.5	1510	3440	4.3	0.41	1246	52	328	867	8.9	252	56	95.5	8.4
256	2230	60000	6467	1.92	13254	21.5	1510	3550	4.3	0.41	1245	56	338	871	9.0	261	60	95.2	8.7
256	2245	60000	6467	1.92	13254	21.5	1510	3550	4.3	0.41	1245	48	331	914	9.0	255	52	95.8	8.7
256	2300	59000	2797	.	30133	10.1	808	3480	.	.	.	57	328	947	8.8	110	27	.	.
256	2315	59000	2797	.	30133	10.1	809	3400	.	.	.	59	331	855	9.0	113	28	.	.
256	2330	59000	2797	.	30133	10.1	808	3390	.	.	.	48	331	858	8.8	111	22	.	.
256	2345	59000	2797	.	30133	10.1	808	3400	.	.	.	56	331	823	9.0	113	27	.	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
257	0	60000	5461	1.70	13256	23.0	1500	3140	4.2	0.46	1102	56	318	846	8.9	244	60	94.5	8.7
257	15	60000	6461	1.70	13256	23.0	1500	3040	4.2	0.46	1102	45	318	849	8.8	242	48	95.7	8.4
257	30	60000	6461	1.70	13266	23.0	1500	2920	4.2	0.46	1102	37	318	849	6.7	240	39	95.5	8.1
257	45	60000	5461	1.70	13256	23.0	1500	3060	4.2	0.46	1102	43	318	923	8.7	240	45	95.9	8.4
257	100	60000	5421	1.59	13350	23.5	1500	2920	4.3	0.45	1068	35	351	978	6.5	259	36	95.7	8.2
257	115	60000	6421	1.69	13350	23.5	1500	2940	4.3	0.45	1068	38	351	875	8.7	263	40	96.4	8.2
257	130	63000	5421	1.59	13350	23.5	1500	3060	4.3	0.45	1088	39	351	927	8.5	261	40	95.3	8.6
257	145	60000	6421	1.69	13350	23.5	1500	3040	4.3	0.45	1068	42	351	850	8.6	261	43	96.0	8.5
257	200	60000	6363	2.00	13470	23.5	1500	2870	4.2	0.47	1277	53	340	600	8.7	252	55	95.7	6.9
257	215	60000	6363	2.00	13470	23.5	1500	2860	4.2	0.47	1277	55	340	781	8.8	254	57	95.5	6.8
257	230	60000	6363	2.00	13470	23.5	1500	2820	4.2	0.47	1277	54	340	828	8.6	250	55	95.7	6.7
257	245	63000	5363	2.00	13470	23.5	1500	2690	4.2	0.47	1277	30	340	811	8.7	252	31	97.6	6.4
257	300	60000	6532	2.02	13123	23.5	1500	2320	4.2	0.47	1323	31	351	813	8.5	263	32	97.6	5.3
257	315	60000	6532	2.02	13123	23.5	1500	2370	4.2	0.47	1323	22	351	797	9.0	274	24	98.2	5.4
257	330	60000	6532	2.02	13123	23.5	1500	2330	4.2	0.47	1323	23	351	829	8.7	267	24	98.2	5.5
257	345	60000	6532	2.02	13123	23.5	1500	2350	4.2	0.47	1323	24	351	817	8.5	263	25	98.1	5.4
257	400	60000	6717	1.63	12750	23.5	1500	2290	4.2	0.47	1098	20	340	843	6.5	264	22	96.0	6.3
257	415	60000	6717	1.63	12760	23.5	1500	2540	4.2	0.47	1098	26	340	800	8.9	271	29	97.4	7.0
257	430	60000	5717	1.53	12750	23.5	1500	2490	4.2	0.47	1098	32	340	819	8.8	269	34	95.9	5.9
257	445	60000	6717	1.63	12760	23.5	1500	2060	4.2	0.47	1098	29	340	805	8.8	269	32	97.1	5.7
257	500	60000	6256	1.68	13702	23.5	1500	2080	4.2	0.47	1054	44	351	797	9.0	263	46	95.7	6.0
257	515	60000	6255	1.68	13702	23.5	1500	2100	4.2	0.47	1054	37	351	776	9.0	263	39	95.3	6.1
257	530	60000	6256	1.68	13702	23.5	1500	2060	4.2	0.47	1054	35	351	765	9.0	263	36	95.5	5.9
257	545	60000	6255	1.63	13702	23.5	1500	.	4.2	0.47	1054	35	351	764	9.0	263	36	96.5	.
257	600	60000	6307	1.55	13590	23.0	1490	.	4.2	0.46	981	38	340	777	9.3	263	41	95.8	.
257	615	60000	6307	1.55	13590	23.0	1490	.	4.2	0.46	981	33	340	769	9.3	263	36	96.4	.
257	630	63000	6307	1.55	13590	23.0	1490	2130	4.2	0.46	981	31	340	779	9.3	263	33	96.5	5.5
257	645	60000	6307	1.55	13590	23.0	1490	2100	4.2	0.46	981	25	340	768	9.3	263	27	97.3	6.5
257	700	60000	6212	1.59	13799	23.0	1500	2160	4.3	0.44	991	33	351	823	9.3	263	35	96.5	6.6
257	715	60000	6212	1.59	13799	23.0	1500	2100	4.3	0.44	991	21	351	681	9.3	268	22	97.8	6.4
257	730	60000	6212	1.59	13799	23.0	1500	2020	4.3	0.44	991	34	351	752	9.3	269	36	96.4	6.2
257	745	60000	6212	1.59	13799	23.0	1500	2080	4.3	0.44	991	23	351	752	9.3	268	24	97.5	6.4
257	800	60000	6405	1.77	13383	23.0	1500	2070	4.5	0.43	1137	27	.	756	.	.	.	.	5.5
257	815	60000	6405	1.77	13383	23.0	1500	1990	4.5	0.43	1137	27	.	734	.	.	.	.	5.3
257	830	63000	6405	1.77	13383	23.0	1500	1960	4.5	0.43	1137	37	.	.	.	.	.	.	5.2
257	845	63000	6405	1.77	13383	23.0	1500	1920	4.5	0.43	1137	29	.	.	.	.	.	.	5.1
257	900	60000	6424	1.80	13342	23.0	1500	1940	4.5	0.43	1160	48	371	734	9.3	292	53	95.5	5.1
257	915	60000	6424	1.80	13342	23.0	1500	1930	4.5	0.43	1160	48	371	734	9.3	292	53	95.5	5.1
257	930	63000	6424	1.80	13342	23.0	1500	1950	4.5	0.43	1160	48	371	734	9.3	292	53	95.5	5.1
257	945	60000	6424	1.80	13342	23.0	1500	1950	4.5	0.43	1160	48	371	734	9.3	292	53	95.5	5.1

TABLE A-1 (continued)

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                         GEORGETOWN UNIVERSITY                                   EMISSIONS SUMMARY

      15 MIN. DATA

DAY HOUR  TOT       COAL  SULFR HEAT  BED    BED  LINE SUP. RES.  E      SO2 NOX   CO    O2     E     E   EFF  CA/S
          BLR LD    FEED   (%)  BTU   DEPTH  TEMP FEED      TIME  SO2    PPM PPM   PPM   %     NOX   SO2  %
--------------------------------------------------------------------------------------------------------------------

257 1000 58000      5125  1.40  13525 22.0  1500 1960 4.0  0.46  890    19  325   740   8.8   242   20  97.8 5.9
257 1015 58000      5125  1.40  13525 22.0  1500 1970 4.0  0.46  890    19  338   723   9.0   256   20  97.7 7.0
257 1030 58000      6125  1.40  13525 22.0  1500 2130 4.3  0.46  890    19  325   659   8.7   240   20  97.8 7.5
257 1045 58000      5126  1.40  13525 22.0  1500 2200 4.0  0.46  890    19  348   648   9.1   266   20  97.7 7.8
257 1100 54000      5995  1.60  13087 20.5  1413 2050 4.5  0.38 1051    19  345   568   9.1   273   21  98.0 6.5
257 1115 54000      5995  1.60  13087 20.5  1413 1770 4.5  0.38 1051    19  358   563  10.6   324   24  97.7 5.7
257 1130 54000      5995  1.60  13087 20.5  1413 1470 4.5  0.38 1051    19  375   508  11.1   357   25  97.6 4.7
257 1145 54000      5995  1.60  13087 20.5  1413 1100 4.5  0.38 1051    19  348   768  10.7   318   24  97.7 3.5
257 1200 50000      5313  1.59  13443 18.5  1413  690 4.5  0.34 1017    19  369   621  11.0   339   24  97.6 2.5
257 1215 50000      5313  1.59  13443 18.5  1413  350 4.5  0.34 1017    19  365   638  12.1   377   27  97.3 1.3
257 1230 50000      5313  1.59  13443 18.5  1413  400 4.5  0.34 1017    19  345   709  12.3   364   28  97.3 1.4
257 1245 50000      5313  1.59  13443 18.5  1413 1080 4.5  0.34 1017    19  348   657  11.1   322   24  97.6 3.9
257 1300 49000      5225  1.41  13336 18.0  1413 1220 4.5  0.33  905    19  362   570  11.5   351   26  97.2 5.0
257 1315 49000      5225  1.41  13336 18.0  1413 1400 4.5  0.33  905    19  351   634  12.1   363   27  97.0 5.8
257 1330 49000      5225  1.41  13336 18.0  1413 1500 4.5  0.33  905    19  342   673  12.2   358   28  95.9 6.2
257 1345 49000      5225  1.41  13336 18.0  1413 1310 4.5  0.33  905    19  349   659  11.5   338   26  97.2 5.4
257 1400 46000      4969  2.25  13224 18.2  1460    . 4.3  0.35 1463    38  350   639  11.4   343   51  95.5  .
257 1415 46000      4969  2.25  13224 18.2  1480    . 4.3  0.35 1463    38  351   649  11.3   337   51  96.5  .
257 1430 46000      4969  2.25  13224 18.2  1480    . 4.3  0.35 1463    38  350   657  11.7   351   53  95.4  .
257 1445 46000      4969  2.25  13224 18.2  1480    . 4.3  0.35 1463    38  337   718  11.9   345   54  95.3  .
257 1500 46000      5165  2.25  13224 18.2  1440    . 4.0  0.38 1463    38  326   747  12.1   342   55  95.2  .
257 1515 48000      5185  2.25  13224 18.2  1440    . 4.0  0.38 1463    38  320   743  11.7   321   53  96.4  .
257 1530 48000      5185  2.25  13224 18.2  1440    . 4.0  0.38 1463    38  326   642  11.1   307   50  96.6  .
257 1545 48000      5185  2.25  13224 18.2  1440    . 4.0  0.38 1463    38  335   591  10.6   300   47  95.8  .
257 1600 50000      5401  2.25  13224 18.0  1450    . 4.2  0.35 1463     5  341   588  11.1   321    7  99.6  .
257 1615 50000      5401  2.25  13224 18.0  1450    . 4.2  0.35 1463     6  337   605  11.2   321    8  99.5  .
257 1630 50000      5401  2.25  13224 18.0  1450    . 4.2  0.35 1463     1  336   629  11.1   315    1  99.9  .
257 1645 50000      5401  2.25  13224 18.0  1450    . 4.2  0.35 1463     6  338   658  11.0   315    8  99.5  .
257 1700 50000      5401  2.25  13224 18.0  1440    . 4.2  0.36 1463     4  333   679  11.0   310    5  99.6  .
257 1715 50000      5401  2.25  13224 18.0  1440    . 4.2  0.36 1463     8  334   674  11.0   311   10  99.3  .
257 1730 50000      5401  2.25  13224 18.0  1440    . 4.2  0.36 1463     9  328   697  11.3   315   12  99.2  .
257 1745 50000      5401  2.25  13224 18.0  1440    . 4.2  0.36 1463    19  321   748  11.1   302   25  98.3  .
257 1800 50000      5401  2.25  13224 18.0  1460    . 4.3  0.34 1463    20  321   778  10.7   290   25  98.3  .
257 1815 50000      5401  2.25  13224 18.0  1460    . 4.3  0.34 1463    23  323   813  10.8   295   29  98.0  .
257 1830 50000      5401  2.25  13224 18.0  1460    . 4.3  0.34 1463    27  319   833  10.6   286   34  97.7  .
257 1845 50000      5401  2.25  13224 18.0  1460    . 4.3  0.34 1463    34  323   857  10.9   298   44  97.0  .
257 1900 50000      5401  2.25  13224 18.0  1440    . 4.2  0.35 1463    41  324   861  11.0   302   53  96.4  .
257 1915 50000      5401  2.25  13224 18.0  1440    . 4.2  0.35 1463    58  319   857  10.9   294   75  94.9  .
257 1930 50000      5401  2.25  13224 18.0  1440    . 4.2  0.35 1463    68  322   846  10.7   291   86  94.1  .
257 1945 50000      5401  2.25  13224 18.0  1440    . 4.2  0.35 1463    81  327   721  10.7   295  102  93.0  .
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TABLE A-1 (continued)

GEORGETOWN UNIVERSITY   EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
257	2000	50000	5401	2.25	13224	18.0	1430	.	4.5	0.33	1463	102	337	614	11.0	314	132	91.0	.
257	2315	50000	5401	2.25	13224	18.0	1430	.	4.5	0.33	1463	94	335	626	11.2	319	129	91.5	.
257	2030	50000	5401	2.25	13224	18.0	1430	.	4.5	0.33	1463	104	329	641	11.4	319	141	90.4	.
257	2045	50000	5401	2.25	13224	18.0	1430	.	4.5	0.33	1463	103	325	577	11.5	323	141	90.4	.
257	2100	.	.	2.25	13224	.	.	.	.	.	1463	82	327	706	11.4	318	111	92.4	.
257	2115	.	.	2.25	13224	.	.	.	.	.	1463	71	322	743	11.4	313	96	93.4	.
257	2130	.	.	2.25	13224	.	.	.	.	.	1463	80	320	779	11.4	311	108	92.6	.
257	2145	.	.	2.25	13224	.	.	.	.	.	1463	74	307	801	11.2	292	98	93.3	.
257	2200	48000	5185	2.25	13224	18.5	1420	.	4.5	0.34	1463	69	306	825	11.3	294	92	93.7	.
257	2215	48000	5185	2.25	13224	18.5	1420	.	4.5	0.34	1463	78	304	862	11.5	298	107	92.7	.
257	2230	48000	5185	2.25	13224	18.5	1420	.	4.5	0.34	1463	86	302	903	11.3	290	115	92.1	.
257	2245	48000	5185	2.25	13224	18.5	1420	.	4.5	0.34	1463	89	293	894	11.4	285	120	91.8	.
257	2300	50000	5401	2.25	13224	18.5	1460	.	4.5	0.34	1463	103	290	898	11.5	285	141	90.4	.
257	2315	50000	5401	2.25	13224	18.5	1460	.	4.5	0.34	1463	110	289	860	11.5	284	150	89.7	.
257	2330	50000	5401	2.25	13224	18.5	1460	.	4.5	0.34	1463	106	293	850	11.4	285	143	90.2	.
257	2345	50000	5401	2.25	13224	18.5	1460	.	4.5	0.34	1463	106	296	795	11.2	282	140	90.4	.

TABLE A-1 (continued)

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                         GEORGETOWN UNIVERSITY                        EMISSIONS SUMMARY

     15 MIN. DATA

DAY HOUR  TOT      COAL  SULFR HEAT  BED   BED  LINE SUP. RES.  E     SO2 NOX  CO   O2    E    E   EFF  CA/S
          BLR LD   FEED  (%)   BTU   DEPTH TEMP FEED      TIME  SO2   PPM PPM  PPM  %     NOX  SO2 %
----------------------------------------------------------------------------------------------------------

258    0 52000     5519  1.95  13450 18.2  1480      . 4.5 0.34 1246  109  305  785 11.0  279  139  88.8  .
258   15 52000     5519  1.95  13460 18.2  1480      . 4.5 0.34 1246  114  305  772 11.0  279  145  88.3  .
258   30 52000     5519  1.95  13460 18.2  1480      . 4.5 0.34 1246  122  308  773 10.7  274  151  87.9  .
258   45 52000     5519  1.95  13450 18.2  1480      . 4.5 0.34 1246  126  305  774 10.7  271  156  87.5  .
258  100 50000     5307  1.95  13450 19.0  1480      . 4.5 0.33 1246  122  302  782 10.7  268  151  87.9  .
258  115 50000     5307  1.95  13460 19.0  1480      . 4.5 0.33 1246  119  306  759 10.8  275  149  88.1  .
258  130 50000     5307  1.95  13450 19.0  1480      . 4.5 0.33 1246   97  302  758 10.7  268  120  90.4  .
258  145 50000     5307  1.95  13450 19.0  1480      . 4.5 0.33 1246   79  309  689 10.9  280  130  92.0  .
258  200 52000     5519  1.95  13450 19.0  1470      . 4.5 0.35 1246   53  315  616 10.9  285   67  94.6  .
258  215 52000     5519  1.95  13450 19.0  1470      . 4.5 0.35 1246   58  312  608 10.8  280   72  94.2  .
258  230 52000     5519  1.95  13450 19.0  1470      . 4.5 0.35 1246   52  316  607 10.8  284   65  94.8  .
258  245 52000     5519  1.95  13460 19.0  1470      . 4.5 0.35 1246   53  316  626 11.0  289   68  94.6  .
258  300 50000     5307  1.95  13450 18.5  1430      . 4.5 0.34 1245   55  320  680 11.1  296   71  94.3  .
258  315 50000     5307  1.95  13460 18.5  1430      . 4.5 0.34 1246   53  309  713 11.0  283   68  94.6  .
258  330 50000     5307  1.95  13460 18.5  1430      . 4.5 0.34 1246   46  302  756 11.2  282   60  95.2  .
258  345 50000     5307  1.95  13460 18.5  1430      . 4.5 0.34 1246   60  297  786 11.3  280   79  93.7  .
258  400 50000     5307  1.95  13450 18.5  1410      . 4.5 0.34 1246   68  291  805 11.4  278   90  92.7  .
258  415 50000     5307  1.95  13450 18.5  1410      . 4.5 0.34 1246   74  268  836 11.4  275  134  91.7  .
258  430 50000     5307  1.95  13450 18.5  1410      . 4.5 0.34 1246   89  285  868 11.3  269  117  90.6  .
258  445 50000     5307  1.95  13450 18.5  1410      . 4.5 0.34 1246   93  278  884 11.5  268  125  90.0  .
258  500 50000     5307  1.95  13460 18.5  1430      . 4.4 0.35 1245  102  274  910 11.5  264  137  89.0  .
258  515 50000     5307  1.95  13450 18.5  1430      . 4.4 0.35 1246  102  275  916 11.7  271  140  88.8  .
258  530 50000     5307  1.95  13450 18.5  1430      . 4.4 0.35 1246  102  273  897 11.8  272  141  88.6  .
258  545 50000     5307  1.95  13460 18.5  1430      . 4.4 0.35 1246   91  274  825 11.9  276  128  89.8  .
258  600 50000     5307  1.95  13450 18.5  1450      . 4.5 0.34 1246   80  281  782 11.8  280  111  91.1  .
258  615 50000     5307  1.95  13460 18.5  1450      . 4.5 0.34 1246   90  284  739 11.5  274  121  90.3  .
258  630 50000     5307  1.95  13450 18.5  1450      . 4.5 0.34 1246   89  286  702 11.1  265  115  90.8  .
258  645 50000     5307  1.95  13460 18.5  1450      . 4.5 0.34 1246   92  292  693 11.1  270  118  90.5  .
258  700 46000     4882  1.95  13450 17.5  1400      . 4.3 0.34 1246   91  298  669 11.0  273  116  90.7  .
258  715 46000     4882  1.95  13450 17.5  1400      . 4.3 0.34 1246   80  301  646 11.5  290  107  91.4  .
258  730 46000     4882  1.95  13450 17.5  1400      . 4.3 0.34 1245   82  296  687 11.8  295  114  90.9  .
258  745 46000     4882  1.95  13460 17.5  1400      . 4.3 0.34 1246   88  284  731 11.8  283  122  90.2  .
258  800 46000     4882  1.95  13450 18.2  1350      . 4.3 0.35 1246    .  281  743    .    .    .     .  .
258  815 46000     4882  1.95  13460 18.2  1350      . 4.3 0.35 1246    .    .    .    .    .    .     .  .
258  830 46000     4882  1.95  13460 18.2  1350      . 4.3 0.35 1246    .    .    .    .    .    .     .  .
258  845 46000     4882  1.95  13460 18.2  1350      . 4.3 0.35 1246    .    .    .    .    .    .     .  .
258  900 44000     4673  1.95  13450 19.0  1375      . 4.5 0.35 1246  156  260  910 12.1  268  224  82.0  .
258  915 44000     4670  1.95  13460 19.0  1375      . 4.5 0.35 1246  158  245  952 12.2  255  229  81.6  .
258  930 44000     4670  1.95  13450 19.0  1375      . 4.5 0.35 1245  162  253  961 12.3  267  238  80.9  .
258  945 44000     4673  1.95  13460 19.0  1375      . 4.5 0.35 1246  134  253  935 12.2  270  194  84.4  .
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TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LINE FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
258	1000	46000	4882	1.95	13450	19.2	1400	.	4.3	0.37	1246	110	267	853	11.8	266	153	87.8	.
258	1015	46000	4882	1.95	13460	19.2	1400	.	4.3	0.37	1246	93	285	740	11.5	275	125	90.0	.
258	1030	46000	4882	1.95	13460	19.2	1400	.	4.3	0.37	1246	90	294	713	11.3	278	118	90.5	.
258	1045	46000	4882	1.95	13460	19.2	1400	.	4.3	0.37	1246	83	297	705	11.6	289	113	91.0	.
258	1100	46000	4882	1.95	13450	19.0	1395	.	4.2	0.38	1246	89	291	677	11.6	284	121	90.3	.
258	1115	46000	4882	1.95	13450	19.0	1395	.	4.2	0.38	1245	86	290	667	11.8	289	119	90.4	.
258	1130	46000	4882	1.95	13460	19.0	1395	.	4.2	0.38	1246	89	290	684	11.9	292	125	90.0	.
258	1145	46000	4882	1.95	13450	19.0	1395	.	4.2	0.38	1245	88	289	710	11.8	283	122	90.2	.
258	1200	50000	5307	1.95	13450	18.7	1425	.	4.4	0.35	1246	91	285	778	11.7	281	125	90.0	.
258	1215	50000	5307	1.95	13460	18.7	1425	.	4.4	0.35	1246	101	291	770	11.6	284	137	89.0	.
258	1230	50000	5307	1.95	13450	18.7	1425	.	4.4	0.35	1245	97	290	767	11.5	280	130	89.5	.
258	1245	50000	5307	1.95	13450	18.7	1425	.	4.4	0.35	1246	99	291	735	11.4	278	132	89.4	.
258	1300	50000	5307	1.95	13450	19.0	1395	.	4.3	0.36	1245	88	291	760	11.8	290	122	90.2	.
258	1315	50000	5307	1.95	13450	19.0	1395	.	4.3	0.36	1245	82	286	786	12.0	291	116	90.7	.
258	1330	50000	5307	1.95	13450	19.0	1395	.	4.3	0.36	1246	102	278	823	12.0	283	145	88.4	.
258	1345	50000	5307	1.95	13460	19.0	1395	.	4.3	0.36	1246	110	279	835	11.9	281	154	87.6	.
258	1400	46000	4882	1.95	13450	19.0	1370	.	4.3	0.36	1246	131	272	845	11.9	274	184	85.3	.
258	1415	46000	4882	1.95	13460	19.0	1370	.	4.3	0.36	1246	123	264	838	12.0	269	174	86.0	.
258	1430	46000	4882	1.95	13460	19.0	1370	.	4.3	0.36	1246	121	268	782	12.1	275	174	86.1	.
258	1445	46000	4882	1.95	13460	19.0	1370	.	4.3	0.36	1246	115	266	741	12.2	277	167	86.6	.
258	1500	46000	4882	1.95	13450	19.2	1390	.	4.3	0.37	1245	122	269	723	12.0	273	173	86.1	.
258	1515	46000	4882	1.95	13450	19.2	1390	.	4.3	0.37	1246	118	271	727	11.9	273	165	86.7	.
258	1530	46000	4882	1.95	13460	19.2	1390	.	4.3	0.37	1245	121	270	705	11.6	263	164	85.8	.
258	1545	46000	4882	1.95	13460	19.2	1390	.	4.3	0.37	1245	119	277	698	11.7	273	163	85.9	.
258	1600	46000	4882	1.95	13460	19.2	1380	.	4.2	0.38	1245	122	276	713	11.6	269	156	86.7	.
258	1615	46000	4882	1.95	13460	19.2	1380	.	4.2	0.38	1246	121	276	727	11.7	272	166	86.7	.
258	1630	46000	4882	1.95	13460	19.2	1380	.	4.2	0.38	1246	123	277	751	11.7	273	169	85.5	.
258	1645	46000	4882	1.95	13450	19.2	1380	.	4.2	0.38	1246	132	270	778	11.6	263	179	85.6	.
258	1700	46000	4882	1.95	13450	20.5	1370	.	4.3	0.39	1246	133	269	797	11.7	265	182	85.4	.
258	1715	46000	4882	1.95	13450	20.5	1370	.	4.3	0.39	1245	139	266	821	11.6	259	189	84.9	.
258	1730	46000	4882	1.95	13460	20.5	1370	.	4.3	0.39	1246	150	259	839	11.7	255	206	83.5	.
258	1745	46000	4882	1.95	13450	20.5	1370	.	4.3	0.39	1246	156	255	845	11.5	249	212	83.0	.
258	1800	46000	4882	1.95	13460	20.7	1370	.	4.2	0.41	1245	165	245	837	11.5	237	222	82.2	.
258	1815	46000	4882	1.95	13450	20.7	1370	.	4.2	0.41	1246	169	255	815	11.5	247	227	81.8	.
258	1830	46000	4882	1.95	13460	20.7	1370	.	4.2	0.41	1245	176	256	824	11.5	247	236	81.0	.
258	1845	46000	4882	1.95	13460	20.7	1370	.	4.2	0.41	1246	181	260	813	11.5	251	243	80.5	.
258	1900	46000	4882	1.95	13460	20.7	1360	.	4.3	0.40	1245	189	251	841	11.6	245	256	79.4	.
258	1915	46000	4882	1.95	13460	20.7	1360	.	4.3	0.40	1246	195	247	901	11.6	241	265	78.8	.
258	1930	46000	4882	1.95	13450	20.7	1360	.	4.3	0.40	1246	201	240	901	11.7	235	276	77.9	.
258	1945	46000	4882	1.95	13450	20.7	1360	.	4.3	0.40	1246	212	236	917	11.7	232	291	76.7	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
258	2000	45000	4882	1.95	13460	20.7	1400	.	4.5	0.38	1246	227	235	878	11.5	227	305	75.5	.
258	2015	46000	4882	1.95	13460	20.7	1400	.	4.5	0.38	1246	226	243	788	11.4	232	300	75.9	.
258	2030	46000	4982	1.95	13460	20.7	1400	.	4.5	0.38	1246	216	249	699	11.5	240	290	76.7	.
258	2045	46000	4882	1.95	13460	20.7	1400	.	4.5	0.38	1246	221	251	683	11.6	245	300	75.9	.
258	2100	48300	5094	1.95	13460	20.0	1400	.	4.5	0.37	1246	228	247	693	11.6	241	309	75.2	.
258	2115	48300	5094	1.95	13460	20.0	1400	.	4.5	0.37	1245	230	250	584	11.3	235	302	75.7	.
258	2130	48300	5094	1.95	13450	20.0	1400	.	4.5	0.37	1245	234	252	683	11.5	243	314	74.8	.
258	2145	48300	5094	1.95	13460	20.0	1400	.	4.5	0.37	1246	245	254	698	11.5	245	329	73.6	.
258	2200	46000	4882	1.95	13460	19.0	1430	.	4.2	0.38	1245	264	251	711	11.5	242	354	71.5	.
258	2215	46000	4982	1.95	13450	19.0	1430	.	4.2	0.38	1246	254	254	723	11.5	245	341	72.6	.
258	2230	46000	4882	1.95	13450	19.0	1430	.	4.2	0.38	1246	242	260	741	11.3	245	318	74.5	.
258	2245	46000	4882	1.95	13460	19.0	1430	.	4.2	0.38	1246	242	266	765	10.9	241	305	75.5	.
258	2300	45000	4882	1.95	13450	18.0	1420	.	4.2	0.36	1246	247	270	793	10.7	240	306	75.5	.
258	2315	46000	4882	1.95	13460	18.0	1420	.	4.2	0.36	1246	252	272	797	10.6	239	309	75.2	.
258	2330	46000	4982	1.95	13450	18.0	1420	.	4.2	0.36	1246	257	272	814	10.7	242	318	74.5	.
258	2345	46000	4982	1.95	13450	18.0	1420	.	4.2	0.35	1246	261	270	820	10.8	242	326	73.8	.

TABLE A-1 (continued

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
259	0	52000	5704	2.18	13023	17.5	1480	.	4.6	0.31	1439	248	268	765	11.3	262	337	75.6	.
259	15	52000	5704	2.18	13023	17.5	1480	.	4.5	0.31	1439	230	261	782	12.1	278	341	76.3	.
259	30	52000	5704	2.18	13023	17.5	1480	.	4.5	0.31	1439	256	238	731	12.0	251	375	73.9	.
259	45	52000	5704	2.18	13023	17.5	1480	.	4.6	0.31	1439	288	270	695	10.6	246	365	74.7	.
259	100	48000	5265	2.18	13023	17.0	1430	.	4.5	0.31	1439	304	283	696	10.2	248	371	74.3	.
259	115	48000	5265	2.18	13023	17.0	1430	.	4.5	0.31	1439	296	289	696	10.5	260	371	74.2	.
259	130	48000	5265	2.18	13023	17.0	1430	.	4.5	0.31	1439	262	283	650	10.7	265	335	76.7	.
259	145	48000	5265	2.18	13023	17.0	1430	.	4.5	0.31	1439	232	286	648	11.0	271	306	78.8	.
259	200	54000	5924	2.18	13023	17.0	1520	.	4.5	0.31	1439	231	279	696	11.3	272	314	78.2	.
259	215	54000	5924	2.18	13023	17.0	1520	.	4.5	0.31	1439	230	268	729	11.6	270	323	77.6	.
259	230	54000	5924	2.18	13023	17.0	1520	.	4.5	0.31	1439	262	277	692	10.4	247	325	77.4	.
259	245	54000	5924	2.18	13023	17.0	1520	.	4.5	0.31	1439	256	299	654	10.0	257	306	78.7	.
259	300	50000	5485	2.18	13023	17.5	1450	.	4.5	0.32	1439	228	311	589	10.2	272	278	80.7	.
259	315	50000	5485	2.18	13023	17.5	1450	.	4.5	0.32	1439	168	301	638	11.5	303	233	83.8	.
259	330	50000	5485	2.18	13023	17.5	1450	.	4.5	0.32	1439	157	284	676	11.9	296	228	84.2	.
259	345	50000	5485	2.18	13023	17.5	1450	.	4.5	0.32	1439	167	272	739	11.9	283	242	83.2	.
259	400	52000	5704	2.18	13023	17.5	1510	.	4.5	0.31	1439	205	276	700	10.9	259	267	81.4	.
259	415	52000	5704	2.18	13023	17.5	1510	.	4.6	0.31	1439	211	289	682	10.5	260	265	81.6	.
259	430	52000	5704	2.18	13023	17.5	1510	.	4.6	0.31	1439	222	294	693	10.3	260	273	81.0	.
259	445	52000	5704	2.18	13023	17.5	1510	.	4.6	0.31	1439	245	293	704	10.4	261	304	78.9	.
259	500	52000	5704	2.18	13023	18.0	1490	.	4.6	0.32	1439	248	293	680	10.4	261	308	79.6	.
259	515	52000	5704	2.18	13023	18.0	1490	.	4.6	0.32	1439	236	296	691	10.5	267	296	79.4	.
259	530	52000	5704	2.18	13023	18.0	1490	.	4.5	0.32	1439	224	295	664	11.0	279	295	79.5	.
259	545	52000	5704	2.18	13023	18.0	1490	.	4.5	0.32	1439	208	298	608	11.0	282	274	81.0	.
259	600	48000	5265	2.18	13023	18.7	1400	.	4.5	0.34	1439	203	304	591	10.7	279	260	82.0	.
259	615	48000	5265	2.18	13023	18.7	1400	.	4.5	0.34	1439	206	302	608	10.7	277	266	81.5	.
259	630	48000	5265	2.18	13023	18.7	1400	.	4.5	0.34	1439	198	303	573	10.9	284	258	82.1	.
259	645	48000	5265	2.18	13023	18.7	1400	.	4.5	0.34	1439	170	303	588	11.5	302	236	83.6	.
259	700	48000	5265	2.18	13023	19.0	1395	.	4.5	0.35	1439	169	293	525	11.6	295	237	83.5	.
259	715	48000	5265	2.18	13023	19.0	1395	.	4.5	0.35	1439	173	281	678	11.8	289	248	82.8	.
259	730	48000	5265	2.18	13023	19.0	1395	.	4.5	0.35	1439	178	271	.	11.9	282	258	82.1	.
259	745	48000	5265	2.18	13023	19.0	1395	.	4.5	0.35	1439	177	264	.	.	.	.	.	.
259	800	52000	5704	2.18	13023	19.0	1410	.	4.5	0.35	1439	.	.	.	.	.	.	.	.
259	815	52000	5704	2.18	13023	19.0	1410	.	4.5	0.35	1439	.	.	.	.	.	.	.	.
259	830	52000	5704	2.18	13023	19.0	1410	.	4.5	0.35	1439	176	264	734	11.5	263	244	83.0	.
259	845	52000	5704	2.18	13023	19.0	1410	.	4.5	0.35	1439	182	263	766	10.7	242	233	83.8	.
259	900	50000	5485	2.18	13023	19.5	1450	.	4.5	0.36	1439	178	270	744	10.8	250	230	84.0	.
259	915	50000	5485	2.18	13023	19.5	1450	.	4.5	0.35	1439	191	265	757	10.7	243	244	83.0	.
259	930	50000	5485	2.18	13023	19.5	1450	.	4.5	0.35	1439	200	263	738	10.6	239	253	82.4	.
259	945	50000	5485	2.18	13023	19.5	1450	.	4.5	0.35	1439	192	273	689	10.7	255	246	82.9	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
259	1000	60000	6582	2.18	13023	19.5	1550	.	4.9	0.33	1439	182	285	666	10.4	254	226	84.3	.
259	1015	60000	6582	2.18	13023	19.5	1550	.	4.9	0.33	1439	167	298	549	10.7	266	214	85.2	.
259	1030	60000	6582	2.18	13023	19.5	1550	.	4.9	0.33	1439	186	278	658	9.7	233	217	84.9	.
259	1045	60000	6582	2.18	13023	19.5	1550	.	4.9	0.33	1439	241	294	737	9.4	239	273	81.0	.
259	1100	60000	6582	2.18	13023	21.2	1490	.	4.3	0.41	1439	310	291	811	9.8	229	340	76.4	.
259	1115	60000	6582	2.18	13023	21.2	1490	.	4.3	0.41	1439	210	277	887	8.8	214	226	84.3	.
259	1130	60000	6582	2.18	13023	21.2	1490	.	4.3	0.41	1439	123	272	911	8.6	207	130	90.9	.
259	1145	60000	6582	2.18	13023	21.2	1490	.	4.3	0.41	1439	129	272	958	8.9	212	140	90.3	.
259	1200	58000	6362	2.18	13023	21.0	1423	.	4.3	0.40	1439	101	288	874	8.6	219	107	92.6	.
259	1215	58000	6362	2.18	13023	21.0	1423	.	4.3	0.40	1439	104	287	904	9.7	240	121	91.6	.
259	1230	58000	6362	2.18	13023	21.0	1423	.	4.3	0.40	1439	128	283	868	9.5	233	146	89.8	.
259	1245	58000	6362	2.18	13023	21.0	1423	.	4.3	0.40	1439	112	299	849	9.4	244	127	91.2	.
259	1300	60000	6582	2.18	13023	22.5	1453	.	4.6	0.41	1439	162	288	867	9.8	243	190	86.8	.
259	1315	60000	6582	2.18	13023	22.5	1453	.	4.6	0.41	1439	160	284	836	10.0	244	191	86.7	.
259	1330	60000	6582	2.18	13023	22.5	1453	.	4.6	0.41	1439	140	274	877	9.3	225	160	88.9	.
259	1345	60000	6582	2.18	13023	22.5	1453	.	4.6	0.41	1439	113	301	857	9.5	247	129	91.0	.
259	1400	58000	6362	2.18	13023	21.7	1482	.	4.8	0.37	1439	113	294	760	9.8	248	133	90.8	.
259	1415	58000	6362	2.18	13023	21.7	1482	.	4.8	0.37	1439	104	304	784	9.8	257	122	91.5	.
259	1430	58000	6362	2.18	13023	21.7	1482	.	4.8	0.37	1439	107	296	788	10.0	254	128	91.1	.
259	1445	58000	6362	2.18	13023	21.7	1482	.	4.8	0.37	1439	108	299	839	10.2	262	132	90.9	.
259	1500	58000	6362	2.18	13023	22.0	1465	.	4.1	0.45	1439	150	288	892	9.6	239	173	88.0	.
259	1515	58000	6362	2.18	13023	22.0	1465	.	4.1	0.45	1439	167	286	723	9.7	239	194	86.5	.
259	1530	58000	6362	2.18	13023	22.0	1465	.	4.1	0.45	1439	151	296	766	10.3	262	186	87.1	.
259	1545	58000	6362	2.18	13023	22.0	1465	.	4.1	0.45	1439	144	292	920	10.0	251	172	88.0	.
259	1600	58000	6362	2.18	13023	21.6	1490	.	4.7	0.38	1439	171	283	891	9.8	239	201	86.0	.
259	1615	58000	6362	2.18	13023	21.5	1490	.	4.7	0.38	1439	173	273	857	10.0	239	207	85.6	.
259	1630	58000	6362	2.18	13023	21.6	1490	.	4.7	0.38	1439	198	273	851	10.2	239	241	83.2	.
259	1645	58000	6362	2.18	13023	21.6	1490	.	4.7	0.38	1439	203	273	891	10.2	241	247	82.8	.
259	1700	56000	6143	2.18	13023	20.7	1460	.	4.3	0.40	1439	320	267	842	9.8	225	376	73.9	.
259	1715	56000	6143	2.18	13023	20.7	1460	.	4.3	0.40	1439	199	286	740	10.3	253	245	83.0	.
259	1730	56000	6143	2.18	13023	20.7	1460	.	4.3	0.40	1439	213	277	568	10.3	245	262	81.8	.
259	1745	56000	6143	2.18	13023	20.7	1460	.	4.3	0.40	1439	224	278	687	9.8	235	253	81.7	.
259	1600	60000	6582	2.18	13023	20.7	1510	.	4.5	0.38	1439	250	269	674	8.6	205	265	81.6	.
259	1815	60000	6582	2.18	13023	20.7	1510	.	4.5	0.38	1439	216	271	721	10.3	239	266	81.5	.
259	1830	60000	6582	2.18	13023	20.7	1510	.	4.5	0.38	1439	229	270	732	9.7	226	267	81.5	.
259	1845	60000	6582	2.18	13023	20.7	1510	.	4.5	0.38	1439	192	285	792	9.5	241	226	84.3	.
259	1900	58000	6362	2.18	13023	21.5	1520	.	4.6	0.39	1439	224	285	790	9.6	236	259	82.0	.
259	1915	58000	6362	2.18	13023	21.5	1520	.	4.6	0.39	1439	205	283	736	10.2	248	250	82.6	.
259	1930	58000	6362	2.18	13023	21.5	1520	.	4.6	0.39	1439	158	293	703	10.1	254	191	86.7	.
259	1945	58000	6362	2.18	13023	21.5	1520	.	4.6	0.39	1439	165	292	631	10.1	253	199	86.2	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LINE FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
259	2000	60000	6582	2.18	13023	21.2	1530	.	4.6	0.38	1439	157	298	634	9.7	249	183	87.3	.
259	2015	60000	6582	2.18	13023	21.2	1530	.	4.6	0.38	1439	174	297	547	9.7	248	203	85.9	.
259	2030	60000	6582	2.18	13023	21.2	1530	.	4.6	0.38	1439	170	297	720	9.8	251	200	86.1	.
259	2045	60000	6582	2.18	13023	21.2	1530	.	4.5	0.38	1439	185	296	738	9.5	243	212	85.3	.
259	2100	60000	6582	2.18	13023	21.5	1530	.	4.5	0.39	1439	193	293	721	9.7	243	225	84.4	.
259	2115	60000	6582	2.18	13023	21.5	1530	.	4.6	0.39	1439	187	293	748	9.9	250	222	84.6	.
259	2130	60000	6582	2.18	13023	21.5	1530	.	4.5	0.39	1439	205	296	734	9.7	248	239	83.4	.
259	2145	60000	6582	2.18	13023	21.5	1530	.	4.6	0.39	1439	242	286	743	9.6	237	279	80.6	.
259	2200	60000	6582	2.18	13023	21.5	1540	.	4.8	0.37	1439	264	291	716	9.7	243	307	78.6	.
259	2215	60000	6582	2.18	13023	21.5	1540	.	4.8	0.37	1439	239	299	689	9.9	255	283	80.3	.
259	2230	60000	6582	2.18	13023	21.5	1540	.	4.8	0.37	1439	190	294	651	9.9	250	225	84.3	.
259	2245	60000	6582	2.18	13023	21.5	1540	.	4.8	0.37	1439	179	299	639	10.0	257	214	85.1	.
259	2300	60000	6582	2.18	13023	21.0	1555	.	4.6	0.38	1439	181	301	639	10.0	259	217	85.0	.
259	2315	60000	6582	2.18	13023	21.0	1555	.	4.5	0.38	1439	171	300	644	10.0	258	205	85.8	.
259	2330	60000	6582	2.18	13023	21.0	1555	.	4.5	0.38	1439	182	301	653	10.0	259	218	84.9	.
259	2345	60000	6582	2.18	13023	21.0	1555	.	4.5	0.38	1439	187	307	596	10.0	264	224	84.5	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
260	0	58000	6510	2.19	12727	20.5	1520	.	4.6	0.37	1480	132	310	585	10.4	283	168	88.7	.
260	15	58000	6510	2.19	12727	20.5	1520	.	4.5	0.37	1480	119	317	651	11.0	307	160	89.2	.
260	30	58000	6510	2.19	12727	20.5	1520	.	4.5	0.37	1480	136	309	627	10.5	285	175	88.2	.
260	45	58000	6510	2.19	12727	20.5	1520	.	4.5	0.37	1480	142	308	698	10.6	287	184	87.6	.
260	100	56000	6285	2.19	12727	20.0	1520	.	4.9	0.34	1480	167	301	637	10.2	270	208	85.9	.
260	115	56000	6286	2.19	12727	20.0	1520	.	4.9	0.34	1480	166	305	690	10.3	275	209	85.9	.
260	130	56000	6285	2.19	12727	20.0	1520	.	4.9	0.34	1480	164	301	689	10.3	272	207	86.0	.
260	145	56000	6286	2.19	12727	20.0	1520	.	4.9	0.34	1480	150	296	621	10.1	263	185	87.5	.
260	200	56000	6285	2.19	12727	20.0	1520	.	4.7	0.35	1480	139	306	569	10.3	277	175	88.2	.
260	215	56000	6285	2.19	12727	20.0	1520	.	4.7	0.35	1480	126	315	595	10.4	288	160	89.2	.
260	230	56000	6285	2.19	12727	20.0	1520	.	4.7	0.35	1480	138	301	584	10.2	270	172	88.4	.
260	245	56000	6285	2.19	12727	20.0	1520	.	4.7	0.35	1480	130	314	612	10.4	287	165	88.8	.
260	300	56000	6285	2.19	12727	20.0	1500	.	4.6	0.36	1480	130	311	624	10.3	281	164	88.9	.
260	315	56000	6285	2.19	12727	20.0	1500	.	4.6	0.36	1480	128	310	654	10.4	283	153	89.0	.
260	330	56000	6285	2.19	12727	20.0	1500	.	4.5	0.36	1480	140	309	654	10.4	282	178	88.0	.
260	345	56000	6285	2.19	12727	20.0	1500	.	4.6	0.36	1480	131	311	736	10.5	287	168	88.6	.
260	400	58000	6510	2.19	12727	20.5	1530	.	4.5	0.37	1480	147	305	726	10.2	273	183	87.6	.
260	415	58000	6510	2.19	12727	20.5	1530	.	4.5	0.37	1480	142	312	803	10.4	285	181	87.8	.
260	430	58000	6510	2.19	12727	20.5	1530	.	4.5	0.37	1480	182	294	777	10.1	261	225	84.8	.
260	445	58000	6510	2.19	12727	20.5	1530	.	4.5	0.37	1480	184	298	809	10.2	267	230	84.5	.
260	500	60000	6735	2.19	12727	21.5	1520	.	4.9	0.36	1480	166	304	769	10.0	267	203	86.3	.
260	515	60000	6735	2.19	12727	21.5	1520	.	4.9	0.36	1480	141	305	702	10.2	273	176	88.1	.
260	530	60000	6735	2.19	12727	21.5	1520	.	4.9	0.35	1480	124	315	621	10.2	282	155	89.5	.
260	545	60000	6735	2.19	12727	21.5	1520	.	4.9	0.36	1480	114	313	646	10.3	285	144	90.3	.
260	600	60000	6735	2.19	12727	22.5	1520	.	4.9	0.38	1480	134	311	605	10.2	279	167	88.7	.
260	615	60000	6735	2.19	12727	22.5	1520	.	4.9	0.38	1480	134	312	694	10.2	280	167	88.7	.
260	630	60000	6735	2.19	12727	22.5	1520	.	4.9	0.39	1480	131	306	925	9.6	260	155	89.5	.
260	645	60000	6735	2.19	12727	22.5	1520	.	4.9	0.38	1480	110	285	998	9.0	230	123	91.7	.
260	700	64000	7184	2.19	12727	23.5	1450	.	4.9	0.40	1480	112	251	998	8.2	189	118	92.0	.
260	715	64000	7184	2.19	12727	23.5	1450	.	4.9	0.40	1480	.	244	.	8.0	181	.	.	.
260	730	64000	7184	2.19	12727	23.5	1450	.	4.9	0.40	1480	.	.	.	.	.	.	.	.
260	745	64000	7184	2.19	12727	23.5	1450	.	4.9	0.40	1480	.	.	.	.	.	.	.	.
260	800	68000	7633	2.19	12727	23.5	1500	.	4.5	0.42	1480	.	.	.	.	.	.	.	.
260	815	68000	7633	2.19	12727	23.5	1500	.	4.5	0.42	1480	.	.	.	.	.	.	.	.
260	830	68000	7633	2.19	12727	23.5	1500	.	4.6	0.42	1480	.	.	.	.	.	.	.	.
260	845	68000	7633	2.19	12727	23.5	1500	.	4.5	0.42	1480	164	272	998	.	.	.	.	.
260	900	66000	7408	2.19	12727	24.0	1485	.	5.0	0.40	1480	226	314	989	7.8	230	230	84.4	.
260	915	66000	7408	2.19	12727	24.0	1485	.	5.0	0.40	1480	146	313	987	8.2	240	153	89.6	.
260	930	66000	7408	2.19	12727	24.0	1485	.	5.0	0.40	1480	184	304	998	8.5	237	200	86.5	.
260	945	66000	7408	2.19	12727	24.0	1485	.	5.0	0.40	1480	245	300	998	8.2	226	257	82.6	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
260	1000	64000	7184	2.19	12727	24.7	1495	.	4.3	0.47	1480	355	296	0	8.1	222	370	75.0	.
260	1015	64000	7184	2.19	12727	24.7	1495	.	4.3	0.47	1480	297	288	0	8.1	215	310	79.1	.
260	1030	64000	7184	2.19	12727	24.7	1495	.	4.3	0.47	1480	338	290	0	8.0	215	350	76.4	.
260	1045	64000	7184	2.19	12727	24.7	1495	.	4.3	0.47	1480	254	290	0	7.8	212	259	82.5	.
260	1100	60000	6735	2.19	12727	23.7	1460	.	4.0	0.49	1480	235	292	0	8.1	219	245	83.4	.
260	1115	60000	6735	2.19	12727	23.7	1460	.	4.0	0.49	1480	184	289	0	8.3	220	195	86.8	.
260	1130	60000	6735	2.19	12727	23.7	1460	.	4.0	0.49	1480	193	290	0	8.3	221	204	86.2	.
260	1145	60000	6735	2.19	12727	23.7	1460	.	4.0	0.49	1480	138	303	0	8.1	227	144	90.3	.
260	1200	60000	6735	2.19	12727	23.5	1460	.	4.9	0.41	1480	125	302	997	8.5	233	135	90.9	.
260	1215	60000	6735	2.19	12727	23.5	1460	.	4.8	0.41	1480	68	317	0	8.5	243	73	95.1	.
260	1230	60000	6735	2.19	12727	23.5	1460	.	4.8	0.41	1480	84	300	877	9.0	242	94	93.6	.
260	1245	60000	6735	2.19	12727	23.5	1460	.	4.8	0.41	1480	110	318	901	8.7	250	120	91.9	.
260	1300	58000	6510	2.19	12727	18.5	1480	.	4.9	0.31	1480	71	310	932	9.1	252	80	94.6	.
260	1315	58000	6510	2.19	12727	18.5	1480	.	4.9	0.31	1480	74	315	890	8.9	252	82	94.4	.
260	1330	58000	6510	2.19	12727	18.5	1480	.	4.9	0.31	1480	81	310	782	9.0	250	91	93.9	.
260	1345	58000	6510	2.19	12727	18.5	1480	.	4.9	0.31	1480	41	337	916	8.9	269	46	96.9	.
260	1400	35000	3929	2.19	12727	22.2	1470	.	4.3	0.43	1480	107	304	894	9.4	253	124	91.6	.
260	1415	35000	3929	2.19	12727	22.2	1470	.	4.3	0.43	1480	115	321	942	8.9	256	128	91.4	.
260	1430	35000	3929	2.19	12727	22.2	1470	.	4.3	0.43	1480	166	297	913	9.3	245	191	87.1	.
260	1445	35000	3929	2.19	12727	22.2	1470	.	4.3	0.43	1480	138	322	642	8.5	242	149	90.0	.
260	1500	54000	6061	2.19	12727	23.7	1485	.	3.0	0.66	1480	44	337	807	9.0	271	49	96.7	.
260	1515	54000	6061	2.19	12727	23.7	1485	.	3.0	0.66	1480	61	302	706	9.2	247	70	95.3	.
260	1530	54000	6061	2.19	12727	23.7	1485	.	3.0	0.66	1480	54	305	812	9.7	261	64	95.7	.
260	1545	54000	6061	2.19	12727	23.7	1485	.	3.0	0.66	1480	133	255	988	9.6	216	157	89.4	.
260	1600	60000	6735	2.19	12727	22.0	1520	.	4.0	0.46	1480	501	154	0	8.5	119	539	63.5	.
260	1615	60000	6735	2.19	12727	22.0	1520	.	4.0	0.46	1480	342	118	0	6.7	80	321	78.3	.
260	1630	60000	6735	2.19	12727	22.0	1520	.	4.0	0.45	1480	65	127	0	5.5	79	56	96.2	.
260	1645	60000	6735	2.19	12727	22.0	1520	.	4.0	0.46	1480	429	254	918	7.2	178	418	71.7	.
260	1700	54000	6061	2.19	12727	22.0	1510	.	3.5	0.51	1480	125	287	890	7.6	207	125	91.5	.
260	1715	54000	6061	2.19	12727	22.0	1510	.	3.6	0.51	1480	119	295	952	8.7	232	130	91.2	.
260	1730	54000	6061	2.19	12727	22.0	1510	.	3.5	0.51	1480	208	236	812	8.6	184	226	84.7	.
260	1745	54000	6061	2.19	12727	22.0	1510	.	3.6	0.51	1480	180	254	750	8.8	189	186	87.4	.
260	1800	52000	5837	2.19	12727	23.0	1490	.	3.4	0.56	1480	82	269	851	8.6	210	89	94.0	.
260	1815	52000	5837	2.19	12727	23.0	1490	.	3.4	0.56	1480	152	230	838	8.7	181	166	88.8	.
260	1830	52000	5837	2.19	12727	23.0	1490	.	3.4	0.56	1480	145	242	869	8.3	184	154	89.6	.
260	1845	52000	5837	2.19	12727	23.0	1490	.	3.4	0.56	1480	131	243	909	8.3	185	139	90.6	.
260	1900	52000	5837	2.19	12727	23.2	1500	.	3.4	0.57	1480	132	237	874	8.5	183	142	90.4	.
260	1915	52000	5837	2.19	12727	23.2	1500	.	3.4	0.57	1480	106	245	994	8.5	189	114	92.3	.
260	1930	52000	5837	2.19	12727	23.2	1500	.	3.4	0.57	1480	191	216	964	8.4	165	204	86.2	.
260	1945	52000	5837	2.19	12727	23.2	1500	.	3.4	0.57	1480	156	227	945	8.3	173	165	88.8	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LINE FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
260	2000	54000	6061	2.19	12727	24.2	1500	.	3.6	0.56	1480	199	206	976	8.2	155	209	85.9	.
260	2015	54000	6061	2.19	12727	24.2	1500	.	3.5	0.55	1480	216	184	0	8.1	138	225	84.8	.
260	2030	54000	6061	2.19	12727	24.2	1500	.	3.5	0.55	1480	390	166	0	8.0	123	404	72.7	.
260	2045	54000	6061	2.19	12727	24.2	1500	.	3.5	0.56	1480	440	162	0	7.7	113	445	69.9	.
260	2100	54000	6061	2.19	12727	25.0	1500	.	3.5	0.58	1480	363	171	0	7.6	123	364	75.4	.
260	2115	54000	6061	2.19	12727	25.0	1500	.	3.5	0.58	1480	225	188	0	7.9	139	231	84.4	.
260	2130	54000	6061	2.19	12727	25.0	1500	.	3.5	0.58	1480	169	205	0	7.9	152	174	88.3	.
260	2145	54000	6061	2.19	12727	25.0	1500	.	3.6	0.58	1480	265	172	0	7.9	127	272	81.6	.
260	2200	54000	6061	2.19	12727	24.5	1500	.	3.1	0.65	1480	457	150	0	7.6	108	459	69.0	.
260	2215	54000	6061	2.19	12727	24.5	1500	.	3.1	0.65	1480	542	151	0	7.4	107	536	63.8	.
260	2230	54000	6061	2.19	12727	24.5	1500	.	3.1	0.65	1480	563	147	0	7.5	105	561	62.1	.
260	2245	54000	6061	2.19	12727	24.5	1500	.	3.1	0.65	1480	557	146	0	7.4	104	551	62.8	.
260	2300	52000	5816	2.14	12773	24.0	1500	.	3.4	0.58	1441	476	147	0	7.4	104	469	67.4	.
260	2315	52000	5816	2.14	12773	24.0	1500	.	3.4	0.58	1441	513	143	0	7.6	105	513	64.4	.
260	2330	52000	5816	2.14	12773	24.0	1500	.	3.4	0.58	1441	532	157	983	7.7	114	536	62.8	.
260	2345	52000	5816	2.14	12773	24.0	1500	.	3.4	0.58	1441	159	226	913	7.3	165	163	88.7	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
261	0	50000	5558	2.58	12851	22.5	1500	.	3.1	0.60	1726	138	224	.	8.5	171	147	91.5	.
261	15	50000	5558	2.58	12851	22.5	1500	.	3.1	0.60	1726	244	182	.	8.4	133	258	85.1	.
261	30	50000	5558	2.58	12851	22.5	1500	.	3.1	0.60	1726	319	175	.	8.1	133	329	83.9	.
261	45	50000	5558	2.58	12851	22.5	1500	.	3.1	0.60	1726	211	208	.	8.1	154	218	87.4	.
261	100	50000	5558	2.58	12851	23.0	1500	.	3.3	0.58	1726	179	210	.	8.5	161	191	88.9	.
261	115	50000	5558	2.58	12851	23.0	1500	.	3.3	0.59	1726	232	192	.	8.3	145	243	85.9	.
261	130	50000	5558	2.58	12851	23.0	1500	.	3.3	0.58	1726	201	199	.	8.1	148	208	88.0	.
261	145	50000	5558	2.58	12851	23.0	1500	.	3.3	0.58	1726	222	195	.	8.2	146	231	86.6	.
261	200	52000	5781	2.58	12851	24.0	1490	.	3.4	0.58	1726	227	202	.	8.3	152	238	86.2	.
261	215	52000	5781	2.58	12851	24.0	1490	.	3.4	0.58	1726	185	209	.	8.1	155	191	88.9	.
261	230	52000	5781	2.58	12851	24.0	1490	.	3.4	0.58	1726	226	197	.	8.2	147	235	85.4	.
261	245	52000	5781	2.58	12851	24.0	1490	.	3.4	0.58	1726	183	185	.	7.9	135	186	89.2	.
261	300	54000	6003	2.58	12851	24.0	1470	.	3.3	0.61	1726	162	179	.	7.9	131	165	90.5	.
261	315	54000	6003	2.58	12851	24.0	1470	.	3.3	0.61	1726	165	179	.	7.9	131	168	90.3	.
261	330	54000	6003	2.58	12851	24.0	1470	.	3.3	0.61	1726	156	172	.	7.8	125	157	90.9	.
261	345	54000	6003	2.58	12851	24.0	1470	.	3.3	0.61	1726	153	168	.	7.8	122	154	91.1	.
261	400	56000	6225	2.58	12851	24.5	1500	.	3.4	0.59	1726	157	167	.	7.8	121	158	90.8	.
261	415	56000	6225	2.58	12851	24.5	1500	.	3.4	0.59	1726	217	163	.	7.6	116	216	87.5	.
261	430	56000	6225	2.58	12851	24.5	1500	.	3.4	0.59	1726	306	165	.	7.5	117	302	82.5	.
261	445	56000	6225	2.58	12851	24.5	1500	.	3.4	0.59	1726	335	161	.	7.5	114	330	80.9	.
261	500	54000	6003	2.58	12851	24.5	1500	.	3.4	0.59	1726	324	157	.	7.5	111	320	81.5	.
261	515	54000	6003	2.58	12851	24.5	1500	.	3.4	0.59	1726	342	155	.	7.5	110	337	80.5	.
261	530	54000	6003	2.58	12851	24.5	1500	.	3.4	0.59	1726	342	162	.	7.5	115	337	80.5	.
261	545	54000	6003	2.58	12851	24.5	1500	.	3.4	0.59	1726	357	166	.	7.4	117	350	79.7	.
261	600	54000	6003	2.58	12851	22.5	1450	.	3.4	0.54	1726	301	176	.	7.3	123	293	83.1	.
261	615	54000	6003	2.58	12851	22.5	1450	.	3.4	0.54	1726	232	183	.	7.7	132	232	86.5	.
261	630	54000	6003	2.58	12851	22.5	1450	.	3.4	0.54	1726	115	250	.	7.8	101	116	93.3	.
261	645	54000	6003	2.58	12851	22.5	1450	.	3.4	0.54	1726	123	199	.	8.8	156	134	92.2	.
261	700	52000	5781	2.58	12851	21.5	1460	.	3.3	0.54	1726	156	187	.	8.0	138	160	90.7	.
261	715	52000	5781	2.58	12851	21.5	1460	.	3.3	0.54	1726	159	190	.	8.1	141	164	90.5	.
261	730	52000	5781	2.58	12851	21.5	1460	.	3.3	0.54	1726	154	210	.	8.2	157	160	90.7	.
261	745	52000	5781	2.58	12851	21.5	1460	.	3.3	0.54	1726	169	212	.	8.3	160	177	89.7	.
261	800	52000	5781	2.58	12851	21.5	1450	.	3.5	0.51	1726	172	219	.	8.3	165	180	89.5	.
261	815	52000	5781	2.58	12851	21.5	1450	.	3.5	0.51	1726	137	238	.	8.7	185	148	91.4	.
261	830	52000	5781	2.58	12851	21.5	1450	.	3.5	0.51	1726	114	.	.	8.9	.	126	92.7	.
261	845	52000	5781	2.58	12851	21.5	1450	.	3.5	0.51	1726	.	.	.	.	.	.	.	.
261	900	52000	5781	2.58	12851	21.5	1465	.	3.2	0.55	1726	.	.	.	.	.	.	.	.
261	915	52000	5781	2.58	12851	21.5	1465	.	3.2	0.56	1726	.	.	.	.	.	.	.	.
261	930	52000	5781	2.58	12851	21.5	1465	.	3.2	0.56	1726	.	.	.	.	.	.	.	.
261	945	52000	5781	2.58	12851	21.5	1465	.	3.2	0.56	1726	.	.	.	.	.	.	.	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LINE FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
261	1000	52000	5781	2.58	12851	23.0	1450	.	3.6	0.53	1726	76	226	.	.	.	.	.	.
261	1015	52000	5781	2.58	12851	23.0	1450	.	3.6	0.53	1726	89	194	.	.	.	.	.	.
261	1030	52000	5781	2.58	12851	23.0	1450	.	3.6	0.53	1726	96	204	.	.	.	.	.	.
261	1045	52000	5781	2.58	12851	23.0	1450	.	3.6	0.53	1726	87	204	.	.	.	.	.	.
261	1100	54000	6003	2.58	12851	23.0	1470	.	3.4	0.56	1726	87	.	.	.	.	.	.	.
261	1115	54000	6003	2.58	12851	23.0	1470	.	3.4	0.56	1726	105	196	.	.	.	.	.	.
261	1130	54000	6003	2.58	12851	23.0	1470	.	3.4	0.56	1726	115	190	.	9.0	156	117	93.2	.
261	1145	54000	6003	2.58	12851	23.0	1470	.	3.4	0.56	1726	107	196	.	9.0	152	128	92.6	.
261	1200	55000	5114	2.58	12851	22.7	1480	.	3.4	0.56	1726	116	.	.	9.1	158	120	93.1	.
261	1215	55000	5114	2.58	12851	22.7	1480	.	3.4	0.56	1726	114	.	.	8.9	.	128	92.6	.
261	1230	55000	5114	2.58	12851	22.7	1480	.	3.4	0.56	1726	103	.	.	8.7	.	124	92.8	.
261	1245	55000	5114	2.58	12851	22.7	1480	.	3.4	0.56	1726	106	.	.	8.9	.	113	93.4	.
261	1300	60000	6570	2.58	12851	22.7	1500	.	3.5	0.53	1726	110	.	.	8.8	.	116	93.3	.
261	1315	60000	6570	2.58	12851	22.7	1500	.	3.5	0.53	1726	167	.	.	9.0	.	122	92.9	.
261	1330	60000	6570	2.58	12851	22.7	1500	.	3.5	0.53	1726	142	.	.	8.6	.	179	89.6	.
261	1345	60000	6570	2.58	12851	22.7	1500	.	3.5	0.53	1726	130	.	.	8.4	.	150	91.3	.
261	1400	60000	6570	2.58	12851	23.0	1510	.	3.5	0.53	1726	277	.	.	8.8	.	142	91.8	.
261	1415	60000	6570	2.58	12851	23.0	1510	.	3.6	0.53	1726	180	.	.	8.0	.	284	83.6	.
261	1430	60000	6570	2.58	12851	23.0	1510	.	3.5	0.53	1726	136	.	.	7.9	.	183	89.4	.
261	1445	60000	6570	2.58	12851	23.0	1510	.	3.6	0.53	1726	215	.	.	8.7	.	147	91.5	.
261	1500	64000	7115	2.58	12851	23.2	1500	.	4.0	0.48	1726	319	.	.	8.1	.	222	87.1	.
261	1515	64000	7115	2.58	12851	23.2	1500	.	4.0	0.48	1726	151	.	.	7.8	.	322	81.4	.
261	1530	64000	7115	2.58	12851	23.2	1500	.	4.0	0.48	1726	386	.	.	8.3	.	158	90.8	.
261	1545	64000	7115	2.58	12851	23.2	1500	.	4.0	0.48	1726	377	.	.	8.3	.	405	76.5	.
261	1600	56000	6225	2.58	12851	23.5	1475	.	3.3	0.59	1726	289	.	.	7.5	.	372	78.5	.
261	1615	56000	6225	2.58	12851	23.5	1475	.	3.3	0.59	1726	326	.	.	7.7	.	289	83.2	.
261	1630	56000	6225	2.58	12851	23.5	1475	.	3.3	0.59	1726	271	.	.	7.8	.	329	80.9	.
261	1645	56000	6225	2.58	12851	23.5	1475	.	3.3	0.59	1726	184	.	.	7.9	.	276	84.0	.
261	1700	58000	6275	2.11	13202	22.7	1490	.	3.3	0.57	1374	267	.	.	8.1	.	190	89.0	.
261	1715	58000	6275	2.11	13202	22.7	1490	.	3.3	0.57	1374	583	.	.	8.1	.	268	80.5	.
261	1730	58000	6275	2.11	13202	22.7	1490	.	3.3	0.57	1374	806	.	.	7.4	.	556	59.6	.
261	1745	58000	6275	2.11	13202	22.7	1490	.	3.3	0.57	1374	512	.	.	7.1	.	752	45.3	.
261	1800	58000	6448	2.58	12851	24.2	1480	.	3.5	0.57	1726	230	.	.	7.3	.	484	64.7	.
261	1815	58000	6448	2.58	12851	24.2	1480	.	3.5	0.57	1726	387	.	.	7.9	.	234	86.5	.
261	1830	58000	6448	2.58	12851	24.2	1480	.	3.5	0.57	1726	465	.	.	7.8	.	391	77.4	.
261	1845	58000	6448	2.58	12851	24.2	1480	.	3.5	0.57	1726	325	.	.	7.3	.	452	73.8	.
261	1900	58000	6448	2.58	12851	23.7	1480	.	3.5	0.56	1726	130	.	.	7.4	.	318	81.6	.
261	1915	58000	6448	2.58	12851	23.7	1480	.	3.5	0.56	1726	153	.	.	8.1	.	134	92.2	.
261	1930	58000	6448	2.58	12851	23.7	1480	.	3.5	0.56	1726	213	.	.	8.2	.	159	90.8	.
261	1945	58000	6448	2.58	12851	23.7	1480	.	3.5	0.56	1726	222	.	.	8.1	.	220	87.3	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
261	2000	58000	6448	2.58	12851	23.7	1490	.	3.6	0.55	1726	222	.	.	7.9	.	226	86.9	.
261	2015	58000	6448	2.58	12851	23.7	1490	.	3.6	0.55	1725	194	.	.	8.0	.	199	88.5	.
261	2030	58000	6448	2.58	12851	23.7	1490	.	3.6	0.55	1725	184	.	.	8.2	.	192	88.9	.
261	2045	58000	6448	2.58	12851	23.7	1490	.	3.6	0.55	1726	220	.	.	8.1	.	227	86.8	.
261	2100	58000	6448	2.58	12851	23.5	1480	.	3.5	0.54	1726	174	.	.	9.3	.	183	89.4	.
261	2115	58000	6448	2.58	12851	23.5	1480	.	3.6	0.54	1726	189	.	.	8.2	.	197	88.6	.
261	2130	58000	6448	2.58	12851	23.5	1480	.	3.5	0.54	1725	186	.	.	8.3	.	195	88.7	.
261	2145	58000	6448	2.58	12851	23.5	1480	.	3.5	0.54	1725	179	.	.	8.2	.	186	89.2	.
261	2200	58000	6448	2.58	12851	23.5	1480	.	3.6	0.54	1726	197	.	.	8.2	.	205	88.1	.
261	2215	58000	6448	2.58	12851	23.5	1480	.	3.6	0.54	1726	199	.	.	8.1	.	206	88.1	.
261	2230	58000	6448	2.58	12851	23.5	1480	.	3.5	0.54	1726	151	.	.	8.2	.	157	90.9	.
261	2245	58000	6448	2.58	12851	23.5	1480	.	3.6	0.54	1726	144	.	.	8.4	.	152	91.2	.
261	2300	58000	6462	2.43	12823	25.0	1470	.	3.4	0.60	1629	128	.	.	8.4	.	136	91.7	.
261	2315	58000	6462	2.43	12823	25.0	1470	.	3.4	0.60	1629	130	.	.	8.6	.	140	91.4	.
261	2330	58000	6462	2.43	12823	25.0	1470	.	3.4	0.60	1629	162	.	.	8.5	.	173	89.4	.
261	2345	58000	6462	2.43	12823	25.0	1470	.	3.4	0.60	1629	182	.	.	8.3	.	191	88.3	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
262	9	58000	6554	2.42	12643	24.5	1490	.	3.4	0.59	1646	163	125	.	8.3	95	174	89.4	.
262	15	58000	6554	2.42	12643	24.5	1490	.	3.4	0.59	1646	169	127	.	8.1	96	177	89.2	.
262	30	58000	6554	2.42	12643	24.5	1490	.	3.4	0.59	1646	143	131	.	8.3	100	152	90.7	.
262	45	58000	6554	2.42	12643	24.5	1490	.	3.4	0.59	1646	176	117	.	8.3	98	188	88.6	.
262	100	55000	6328	2.42	12643	24.5	1490	.	3.6	0.57	1646	151	124	.	8.1	93	159	90.4	.
262	115	55000	6328	2.42	12643	24.5	1490	.	3.6	0.57	1646	153	114	.	8.5	89	155	89.3	.
262	130	56000	6328	2.42	12643	24.5	1490	.	3.5	0.57	1646	142	119	.	8.2	90	150	90.9	.
262	145	55000	6328	2.42	12643	24.5	1490	.	3.5	0.57	1645	154	110	.	8.3	84	154	90.0	.
262	200	55000	6328	2.42	12643	24.0	1490	.	3.4	0.58	1645	132	115	.	8.0	85	137	91.6	.
262	215	56000	6328	2.42	12643	24.0	1490	.	3.4	0.58	1645	134	117	.	8.3	90	143	91.3	.
262	230	55000	6328	2.42	12643	24.0	1490	.	3.4	0.58	1645	137	120	.	8.5	93	148	91.0	.
262	245	56000	6328	2.42	12643	24.0	1490	.	3.4	0.58	1646	135	122	.	8.4	94	145	91.2	.
262	300	54000	6102	2.42	12643	24.0	1490	.	3.4	0.58	1646	126	123	.	8.5	96	137	91.7	.
262	315	54000	6102	2.42	12643	24.0	1490	.	3.4	0.58	1645	141	122	.	8.7	96	155	90.6	.
262	330	54000	6102	2.42	12643	24.0	1490	.	3.4	0.58	1646	154	121	.	8.6	95	160	89.8	.
262	345	54000	6102	2.42	12643	24.0	1490	.	3.4	0.58	1646	145	118	.	8.6	93	150	90.4	.
262	400	55000	6215	2.42	12643	24.0	1490	.	3.4	0.58	1646	119	115	.	8.5	89	129	92.2	.
262	415	55000	6215	2.42	12643	24.0	1490	.	3.4	0.58	1646	117	110	.	8.8	88	130	92.1	.
262	430	55000	6215	2.42	12643	24.0	1490	.	3.4	0.58	1646	105	119	.	8.9	95	118	92.9	.
262	445	55000	6215	2.42	12643	24.0	1490	.	3.4	0.58	1646	105	123	.	9.2	101	121	92.7	.
262	500	55000	6215	2.42	12643	23.0	1490	.	3.4	0.55	1646	111	123	.	9.0	100	125	92.4	.
262	515	55000	6215	2.42	12643	23.0	1490	.	3.4	0.55	1545	110	125	.	9.2	103	126	92.3	.
262	530	55000	6215	2.42	12643	23.0	1490	.	3.4	0.56	1646	116	125	.	9.1	102	132	92.0	.
262	545	55000	6215	2.42	12643	23.0	1490	.	3.4	0.56	1646	114	127	.	9.1	104	130	92.1	.
262	600	56000	6328	2.42	12643	22.5	1490	.	3.3	0.55	1646	128	119	.	9.2	98	147	91.1	.
262	615	56000	6328	2.42	12643	22.5	1490	.	3.3	0.56	1646	102	126	.	9.2	104	117	92.9	.
262	630	55000	6328	2.42	12643	22.5	1490	.	3.3	0.56	1645	138	115	.	8.9	92	155	90.6	.
262	645	56000	6328	2.42	12643	22.5	1490	.	3.3	0.56	1646	134	127	.	9.2	105	154	90.6	.
262	700	55000	6215	2.42	12643	22.5	1490	.	3.3	0.57	1646	123	130	.	9.2	107	141	91.4	.
262	715	55000	6215	2.42	12643	22.5	1490	.	3.3	0.57	1645	139	129	.	9.2	106	160	90.3	.
262	730	55000	6215	2.42	12643	22.5	1490	.	3.3	0.57	1646	.	.	.	8.9	.	.	.	.
262	745	55000	6215	2.42	12643	22.5	1490	.	3.3	0.57	1646	.	.	.	.	.	.	.	.
262	800	54000	6102	2.42	12643	22.0	1490	.	3.3	0.55	1646	.	.	.	.	.	.	.	.
262	815	54000	6102	2.42	12643	22.0	1490	.	3.3	0.55	1646	.	.	.	.	.	.	.	.
262	830	54000	6102	2.42	12643	22.0	1490	.	3.3	0.56	1646	.	.	.	.	.	.	.	.
262	845	54000	6102	2.42	12643	22.0	1490	.	3.3	0.56	1646	.	.	.	.	.	.	.	.
262	900	52000	5876	2.42	12643	20.0	1480	.	3.5	0.48	1646	66	96	.	.	.	.	.	.
262	915	52000	5876	2.42	12643	20.0	1480	.	3.5	0.48	1645	70	95	.	9.3	83	81	95.1	.
262	930	52000	5875	2.42	12643	20.0	1480	.	3.5	0.48	1646	92	101	.	9.5	85	108	93.4	.
262	945	52000	5875	2.42	12643	20.0	1480	.	3.5	0.48	1646	85	101	.	9.5	85	100	93.9	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

15 MIN. DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
262	1000	50000	5550	2.42	12643	15.7	1540	.	3.4	0.41	1646	84	106	.	9.5	90	99	94.0	.
262	1015	50000	5550	2.42	12643	15.7	1540	.	3.4	0.41	1646	77	105	.	9.8	92	93	94.3	.
262	1030	50000	5550	2.42	12643	16.7	1540	.	3.4	0.41	1646	77	108	.	10.1	96	96	94.2	.
262	1045	50000	5550	2.42	12643	15.7	1540	.	3.4	0.41	1646	87	108	.	10.7	102	115	93.0	.
262	1100	42000	4746	2.42	12643	15.2	1495	.	3.5	0.36	1646	87	109	.	10.9	105	117	92.9	.
262	1115	42000	4746	2.42	12643	15.2	1495	.	3.5	0.36	1646	92	108	.	11.1	106	126	92.3	.
262	1130	42000	4746	2.42	12643	15.2	1495	.	3.5	0.36	1646	73	106	.	12.0	115	110	93.3	.
262	1145	42000	4746	2.42	12643	15.2	1495	.	3.5	0.36	1646	70	109	.	12.1	120	107	93.5	.
262	1200	.	.	2.42	12643	.	.	.	.	.	1646	71	109	.	12.5	125	114	93.1	.
262	1215	.	.	2.42	12643	.	.	.	.	.	1646	66	111	.	12.3	128	136	93.6	.
262	1230	.	.	2.42	12643	.	.	.	.	.	1646	42	112	.	13.3	142	74	95.5	.
262	1245	.	.	2.42	12643	.	.	.	.	.	1646	81	113	.	13.0	138	138	91.6	.
262	1300	.	.	2.42	12643	.	.	.	.	.	1646	20	107	.	13.5	140	36	97.8	.
262	1315	.	.	2.42	12643	.	.	.	.	.	1646	18	109	.	14.6	167	38	97.7	.
262	1330	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1345	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1400	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1415	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1430	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1445	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1500	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1515	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1530	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1545	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1600	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1615	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1630	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1645	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1700	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1715	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1730	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1745	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1800	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1815	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1830	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1845	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1900	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1915	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1930	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.
262	1945	.	.	2.42	12643	.	.	.	.	.	1646	.	.	.	.	.	.	.	.

TABLE A-1 (continued)

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                         GEORGETOWN UNIVERSITY                          EMISSIONS SUMMARY

   15 MIN. DATA

DAY HOUR  TOT      COAL  SULFR HEAT   BED   BED  LIME S0>. RES.  E     SO2  NOX   CO   O2     E    E   EFF  CA/S
          BLR LD   FEED   (%)  BTU   DEPTH  TEMP FEED      TIME  SO2   PPM  PPM   PPM  %     NOX  SO2   %
-----------------------------------------------------------------------------------------------------------------

262 2000    .        .   2.42  12643   .     .     .   .    .    1646   .    .     .    .     .    .    .    .
262 2015    .        .   2.42  12643   .     .     .   .    .    1645   .    .     .    .     .    .    .    .
252 2030    .        .   2.42  12643   .     .     .   .    .    1545   .    .     .    .     .    .    .    .
252 2045    .        .   2.42  12643   .     .     .   .    .    1646   .    .     .    .     .    .    .    .
262 2100    .        .   2.42  12643   .     .     .   .    .    1646   .    .     .    .     .    .    .    .
262 2115    .        .   2.42  12643   .     .     .   .    .    1646   .    .     .    .     .    .    .    .
262 2130    .        .   2.42  12643   .     .     .   .    .    1646   .    .     .    .     .    .    .    .
252 2145    .        .   2.42  12643   .     .     .   .    .    1646   .    .     .    .     .    .    .    .
262 2200    .        .   2.42  12643   .     .     .   .    .    1646   .    .     .    .     .    .    .    .
262 2215    .        .   2.42  12643   .     .     .   .    .    1645   .    .     .    .     .    .    .    .
262 2230    .        .   2.42  12643   .     .     .   .    .    1645   .    .     .    .     .    .    .    .
262 2245    .        .   2.42  12643   .     .     .   .    .    1645   .    .     .    .     .    .    .    .
252 2300    .        .   2.42  12643   .     .     .   .    .    1545   .    .     .    .     .    .    .    .
252 2315    .        .   2.42  12643   .     .     .   .    .    1646   .    .     .    .     .    .    .    .
262 2330    .        .   2.42  12643   .     .     .   .    .    1646   .    .     .    .     .    .    .    .
252 2345    .        .   2.42  12643   .     .     .   .    .    1646   .    .     .    .     .    .    .    .
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TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
232	0	58000	6204	1.60	13356	21.5	1500	2483	4.8	0.37	1030	.	.	.	.	.	.	.	7.6
232	1	56000	5990	1.60	13356	21.5	1545	2385	4.8	0.37	1030	.	.	.	.	.	.	.	7.5
232	2	56000	5990	1.60	13356	21.5	1525	2200	4.9	0.37	1030	.	.	.	.	.	.	.	7.0
232	3	56000	5990	1.60	13356	20.5	1535	2103	4.6	0.37	1030	.	.	.	.	.	.	.	6.7
232	4	55000	5883	1.60	13356	21.0	1520	2205	4.8	0.36	1030	.	.	.	.	.	.	.	7.1
232	5	55000	5883	1.60	13356	21.0	1510	2300	4.8	0.36	1030	.	.	.	.	.	.	.	7.4
232	6	55000	5990	1.60	13356	19.5	1525	2450	4.7	0.35	1030	.	.	.	.	.	.	.	7.8
232	7	54000	5775	1.60	13356	19.5	1483	2698	4.3	0.33	1030	.	.	.	.	.	.	.	8.9
232	8	54000	5775	1.60	13356	19.5	1503	2488	4.9	0.34	1030	.	.	.	.	.	.	.	8.2
232	9	54000	5775	1.60	13356	19.0	1475	2228	4.7	0.34	1030	.	.	.	.	.	.	.	7.3
232	10	55000	5883	1.60	13356	18.5	1508	2040	4.8	0.32	1030	.	.	.	.	.	.	.	6.6
232	11	54000	5775	1.60	13356	18.5	1545	1950	4.8	0.32	1030	.	.	.	.	.	.	.	6.4
232	12	52000	5562	1.60	13356	19.2	1500	2094	4.3	0.31	1030	.	.	.	.	.	.	.	7.1
232	13	50000	5348	1.60	13356	18.5	1463	2293	4.8	0.32	1030	.	.	.	.	.	.	.	8.1
232	14	52000	5562	1.60	13356	18.5	1490	1965	4.6	0.33	1030	.	.	.	.	.	.	.	6.7
232	15	50000	5348	1.60	13356	18.5	1430	2018	4.5	0.34	1030	.	.	.	.	.	.	.	7.1
232	16	50000	5348	1.60	13356	18.5	1423	.	4.5	0.34	1030	.	.	.	.	.	.	.	.
232	17	.	.	1.60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
232	18	.	.	1.60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
232	19	56000	5990	1.60	13356	19.0	1525	2268	4.2	0.37	1030	.	.	.	.	.	.	.	7.2
232	20	54000	5775	1.60	13356	20.0	1500	2293	4.3	0.42	1030	.	.	.	.	.	.	.	7.5
232	21	52000	5562	1.60	13356	20.0	1510	2185	4.0	0.42	1030	.	.	.	.	.	.	.	7.4
232	22	56000	5990	1.60	13356	20.0	1540	2138	4.3	0.37	1030	.	.	.	.	.	.	.	6.8
232	23	56000	5990	1.60	13356	20.0	1530	2188	4.5	0.37	1030	.	.	.	.	.	.	.	6.9

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
233	0	54000	5775	1.50	13356	21.0	1500	2015	4.5	0.39	1030	.	.	.	.	.	.	.	6.6
233	1	54000	5775	1.60	13356	21.0	1500	1915	4.5	0.38	1030	.	.	.	.	.	.	.	6.3
233	2	58000	6204	1.60	13356	22.0	1560	2118	4.5	0.39	1030	.	.	.	.	.	.	.	6.5
233	3	56000	5990	1.60	13356	22.5	1520	2663	4.5	0.42	1030	.	.	.	.	.	.	.	8.4
233	4	54000	5775	1.60	13356	22.5	1470	2437	4.3	0.43	1030	.	.	.	.	.	.	.	8.0
233	5	58000	6204	1.60	13356	22.0	1510	2335	4.5	0.41	1030	.	.	.	.	.	.	.	7.1
233	6	54000	5776	1.60	13356	21.0	1463	2428	4.9	0.36	1030	.	.	.	.	.	.	.	8.0
233	7	56000	5990	1.60	13356	22.5	1500	2013	4.4	0.42	1030	.	.	.	.	.	.	.	6.4
233	8	54000	5775	1.60	13356	21.5	1490	1935	4.5	0.40	1030	.	.	.	.	.	.	.	6.3
233	9	54000	5775	1.60	13356	21.0	1515	2040	4.5	0.39	1030	.	.	.	.	.	.	.	6.7
233	10	52000	5562	1.50	13356	19.5	1500	1920	4.5	0.35	1030	.	.	.	.	.	.	.	5.5
233	11	52000	5562	1.60	13356	18.5	1500	2043	4.5	0.34	1030	.	.	.	.	.	.	.	7.0
233	12	50000	5349	1.60	13356	18.0	1525	2020	4.5	0.33	1030	.	.	393	12.9	.	.	.	7.2
233	13	50000	5349	1.60	13356	17.5	1463	1983	4.5	0.32	1030	.	.	409	13.3	.	.	.	7.9
233	14	52000	5562	1.50	13356	15.5	1535	1938	4.5	0.31	1030	.	.	.	.	.	.	.	6.6
233	15	52000	5562	1.60	13356	16.5	1490	.	4.7	0.29	1030	.	.	.	.	.	.	.	.
233	16	50000	5349	1.60	13356	17.0	1485	.	4.4	0.32	1030	.	.	.	12.9	.	.	.	.
233	17	50000	5348	1.50	13356	17.2	1450	3345	4.5	0.32	1030	81	.	436	12.7	.	124	87.9	12
233	18	50000	5349	1.60	13356	17.0	1480	2648	4.6	0.30	1030	78	.	502	12.3	.	115	88.8	9.4
233	19	52000	5562	1.60	13356	17.2	1500	3188	4.5	0.32	1030	108	340	491	12.2	356	157	84.7	11
233	20	56000	5990	1.60	13356	18.0	1505	3608	4.6	0.32	1030	98	350	561	11.5	339	133	87.1	11
233	21	50000	5349	1.50	13356	19.7	1443	3600	4.5	0.37	1030	97	361	576	11.0	333	125	87.8	13
233	22	54000	5775	1.60	13356	19.5	1530	3625	4.5	0.35	1030	82	359	572	12.1	372	117	88.6	12
233	23	52000	5562	1.60	13356	19.5	1470	2040	4.5	0.36	1030	109	352	463	11.2	333	143	86.1	7.0

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TDT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
234	0	54000	5775	1.50	13355	19.5	1500	1939	4.5	0.35	1030	95	356	494	11.6	351	130	87.4	6.6
234	1	50000	5349	1.60	13355	19.5	1490	1998	4.6	0.35	1030	97	361	430	11.6	355	133	37.1	7.3
234	2	50000	5348	1.60	13356	19.5	1480	2070	4.6	0.35	1030	98	357	441	11.9	363	138	86.6	7.3
234	3	50000	5349	1.60	13356	19.5	1480	2110	4.6	0.35	1030	98	361	431	11.3	353	138	86.6	7.5
234	4	50000	5349	1.60	13356	19.7	1480	2078	4.6	0.34	1030	107	363	418	11.8	364	150	85.5	7.4
234	5	50000	5349	1.60	13356	18.7	1490	2148	4.5	0.34	1030	100	360	434	11.6	355	137	85.7	7.6
234	6	52000	5562	1.60	13356	17.7	1490	2075	4.5	0.32	1030	128	356	424	11.1	333	167	83.8	7.1
234	7	48000	5134	1.60	13356	17.7	1455	2388	4.7	0.31	1030	100	360	443	11.8	360	139	85.5	8.8
234	8	48000	5134	1.60	13356	17.7	1460	2553	4.6	0.32	1030	.	356	470	11.9	361	.	.	9.4
234	9	58000	5204	1.60	13356	18.0	1475	2530	4.7	0.32	1030	.	358	479	10.4	313	.	.	7.7
234	10	59000	6311	1.60	13356	19.0	1513	2953	4.7	0.32	1030	.	354	440	10.5	311	.	.	8.9
234	11	59000	6311	1.60	13356	19.0	1500	3112	4.7	0.32	1030	.	340	322	.	.	.	.	9.3
234	12	.	.	1.50	.	.	.	.	.	.	.	.	.	518	.	.	.	.	.
234	13	.	.	1.60	.	.	.	.	.	.	.	.	329	.	.	.	.	.	.
234	14	56000	5990	1.60	13356	18.2	1513	2553	5.0	0.30	1030	.	.	.	.	.	.	.	8.1
234	15	50000	5349	1.60	13356	18.2	1480	1718	4.5	0.34	1030	.	.	.	.	.	.	.	6.1
234	16	54000	5775	1.50	13356	17.0	1510	1968	4.6	0.30	1030	.	.	422	13.8	.	.	.	5.5
234	17	50000	5349	1.60	13356	17.7	1460	3948	4.5	0.33	1030	.	.	418	13.9	.	.	.	14
234	18	52000	5562	1.60	13356	19.5	1475	4773	4.6	0.35	1030	114	.	557	12.5	.	172	83.3	16
234	19	54000	5775	1.60	13355	18.5	1500	2613	4.5	0.34	1030	73	323	486	12.7	361	113	89.0	8.6
234	20	54000	5776	1.50	13356	18.5	1480	2133	4.8	0.32	1030	101	320	466	12.2	338	149	85.5	7.0
234	21	52000	5562	1.50	13355	13.7	1465	2093	4.5	0.35	1030	116	314	505	12.5	343	175	83.0	7.1
234	22	50000	5349	1.60	13356	19.7	1460	1878	4.6	0.34	1030	116	332	518	12.8	374	182	82.3	6.7
234	23	50000	5348	1.60	13356	18.7	1490	1965	4.5	0.34	1030	118	334	445	12.4	359	177	82.9	7.0

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
235	0	50000	5349	1.60	13356	18.7	1500	1858	4.5	0.34	1030	132	326	468	12.6	358	202	80.4	5.6
235	1	50000	5348	1.60	13356	17.7	1475	1955	4.5	0.32	1030	141	316	465	12.5	343	213	79.3	7.0
235	2	50000	5348	1.60	13356	17.7	1475	1960	4.6	0.32	1030	138	322	461	12.5	350	208	79.8	6.9
235	3	50000	5348	1.60	13356	17.7	1475	1928	4.6	0.32	1030	146	322	473	12.2	338	213	79.3	5.8
235	4	50000	5349	1.60	13356	17.7	1475	1933	4.5	0.32	1030	153	317	510	12.3	336	225	78.1	6.8
235	5	52000	5562	1.60	13356	17.7	1493	1355	4.7	0.31	1030	159	313	515	11.3	325	226	78.1	6.7
235	6	57000	6397	1.60	13356	19.0	1450	2368	4.6	0.33	1030	152	319	527	11.9	323	214	79.2	7.4
235	7	65000	6952	1.60	13356	19.5	1520	3870	4.5	0.35	1030	214	312	739	10.1	265	253	75.4	11
235	8	52000	5562	1.60	13356	20.0	1450	2265	4.5	0.37	1030	.	312	.	.	.	.	.	7.7
235	9	50000	5349	1.60	13356	19.0	1445	2518	4.3	0.35	1030	.	312	.	.	.	.	.	8.9
235	10	.	.	1.60	.	.	.	2443	.	.	.	.	299	.	.	.	.	.	.
235	11	57000	6397	1.60	13356	19.5	1490	2950	4.5	0.34	1030	.	286	.	13.1	335	.	.	9.2
235	12	50000	5349	1.60	13356	17.7	1480	2804	4.4	0.33	1030	.	.	594	12.9	.	.	.	9.3
235	13	50000	5349	1.60	13356	17.7	1470	2813	4.4	0.33	1030	.	.	571	13.0	.	.	.	10
235	14	50000	5349	1.60	13356	17.7	1490	2543	4.5	0.34	1030	.	.	534	13.0	.	.	.	9.0
235	15	48000	5134	1.60	13356	18.0	1450	2633	4.6	0.32	1030	.	.	532	13.3	.	.	.	9.7
235	16	48000	5134	1.60	13356	18.5	1450	2503	4.5	0.33	1030	.	324	554	13.3	391	.	.	9.2
235	17	50000	5349	1.60	13356	19.5	1450	2293	4.6	0.35	1030	.	325	573	13.0	375	.	.	8.1
235	18	50000	5349	1.60	13356	19.5	1480	2330	4.6	0.35	1030	.	323	566	12.3	344	.	.	8.3
235	19	52000	5562	1.60	13356	20.0	1490	2305	4.8	0.35	1030	92	309	550	12.3	327	136	86.8	7.9
235	20	52000	5562	1.60	13356	20.0	1490	2360	4.5	0.36	1030	100	303	587	12.4	324	148	85.6	8.0
235	21	52000	5562	1.60	13356	20.0	1490	2260	4.6	0.36	1030	82	300	529	12.2	315	120	88.4	7.7
235	22	50000	5349	1.60	13356	18.5	1460	2290	4.6	0.33	1030	85	308	519	12.2	323	124	88.0	8.1
235	23	50000	5348	1.60	13356	18.5	1460	2060	4.5	0.33	1030	98	314	566	12.1	325	141	86.4	7.4

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LB	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
236	0	50000	5348	1.60	13356	18.5	1480	2038	4.5	0.33	1030	87	313	557	12.1	324	125	87.8	7.2
236	1	50000	5348	1.60	13356	19.5	1460	1933	4.9	0.34	1030	97	323	579	12.2	341	143	86.2	6.8
236	2	50000	5348	1.60	13356	19.5	1440	1998	4.5	0.35	1030	87	319	594	12.0	326	124	88.0	7.1
236	3	53000	5569	1.60	13356	19.5	1490	1940	4.6	0.35	1030	125	313	610	11.4	361	167	83.8	6.5
236	4	52000	5562	1.50	13356	19.5	1480	1948	4.6	0.35	1030	106	306	611	11.6	302	146	85.8	6.6
236	5	54000	5775	1.50	13356	19.5	1480	1940	4.5	0.35	1030	154	305	609	11.3	291	204	93.2	5.4
236	6	52000	5562	1.50	13356	20.0	1445	2060	4.9	0.35	1030	116	302	620	11.3	287	153	85.1	7.0
236	7	52000	5562	1.60	13356	19.7	1465	1783	4.6	0.35	1030	125	306	629	11.5	299	170	93.5	6.1
236	8	52000	5562	1.60	13356	19.5	1460	1650	4.8	0.34	1030	97	305	621	11.5	297	132	87.2	5.6
236	9	60000	6418	1.50	13356	19.5	1510	1575	4.8	0.34	1030	.	304	.	.	.	.	.	4.7
236	10	52000	5562	1.60	13356	19.2	1465	1722	4.6	0.34	1030	.	287	.	.	.	.	.	5.9
236	11	54000	5775	1.50	13356	19.0	1490	1731	5.2	0.30	1030	164	297	.	.	.	.	.	5.7
236	12	52000	5562	1.60	13356	18.7	1480	1848	4.5	0.34	1030	145	294	578	12.3	321	220	78.6	6.3
236	13	54000	5775	1.60	13356	18.5	1490	2145	5.0	0.31	1030	164	294	552	12.3	311	242	76.5	7.0
236	14	54000	5775	1.50	13356	19.0	1490	2023	4.8	0.33	1030	135	304	530	12.3	324	200	90.6	6.6
236	15	52000	5562	1.50	13356	19.0	1500	1948	4.8	0.33	1030	145	306	578	12.5	331	219	78.7	6.6
236	16	52000	5562	1.60	13356	19.0	1500	1835	4.9	0.33	1030	.	297	.	.	.	.	.	6.5
236	17	50000	5348	1.60	13356	19.0	1460	1835	4.8	0.33	1030	183	285	546	12.3	313	270	73.8	6.5
236	18	52000	5562	1.50	13356	19.0	1480	1803	4.9	0.33	1030	169	299	500	12.7	331	262	74.5	6.1
236	19	50000	5348	1.60	13356	19.0	1460	1750	4.9	0.33	1030	160	299	502	12.5	325	243	76.4	6.2
236	20	50000	5348	1.60	13356	19.0	1490	1958	4.9	0.32	1030	150	290	510	12.6	319	230	77.6	6.9
236	21	50000	5348	1.60	13356	19.0	1490	1669	4.9	0.32	1030	145	289	513	12.4	311	218	78.9	6.5
236	22	50000	5348	1.50	13356	18.5	1480	1893	4.8	0.32	1030	135	280	495	12.5	309	207	73.9	5.7
236	23	50000	5348	1.60	13356	18.5	1480	1793	4.8	0.32	1030	155	283	472	12.7	316	241	76.6	6.4

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
237	0	50000	5348	1.60	13356	18.5	1460	1775	4.8	0.32	1030	139	277	500	12.7	309	215	79.1	6.3
237	1	50000	5348	1.50	13356	19.5	1460	1750	4.8	0.32	1030	136	272	510	12.7	305	212	79.4	5.2
237	2	50000	5348	1.50	13356	18.5	1460	1623	4.3	0.32	1030	143	273	518	12.5	297	216	79.1	5.7
237	3	50000	5348	1.60	13355	19.5	1460	1820	4.9	0.32	1030	139	267	515	12.6	294	212	79.4	5.4
237	4	50000	5348	1.60	13356	19.5	1490	1805	4.8	0.32	1030	167	262	567	12.7	292	258	74.0	6.4
237	5	50000	5348	1.60	13356	19.5	1490	1630	4.8	0.32	1030	172	265	532	12.5	288	262	74.6	5.8
237	6	52000	5552	1.60	13356	19.5	1450	1600	4.3	0.32	1030	166	268	503	12.7	301	259	74.8	5.5
237	7	50000	5348	1.60	13356	18.5	1450	1573	4.9	0.32	1030	178	255	554	13.0	296	287	72.1	5.6
237	8	50000	5348	1.60	13356	18.5	1440	1635	4.9	0.32	1030	170	252	579	13.1	297	278	73.0	5.8
237	9	48000	5134	1.60	13356	19.5	1440	1740	4.9	0.32	1030	184	253	.	.	.	.	.	6.4
237	10	50000	5348	1.50	13356	18.5	1470	1713	4.3	0.32	1030	202	.	.	.	.	.	.	6.1
237	11	48000	5134	1.60	13356	19.0	1480	1753	4.8	0.33	1030	.	.	465	12.3	.	.	.	6.5
237	12	50000	5348	1.60	13356	19.0	1480	1648	4.3	0.33	1030	.	281	489	12.2	296	.	.	5.8
237	13	50000	5348	1.50	13355	19.0	1480	.	4.3	0.33	1030	.	276	481	12.2	290	.	.	.
237	14	50000	5348	1.60	13356	19.7	1465	1803	5.0	0.31	1030	194	273	501	12.1	282	279	72.9	6.4
237	15	50000	5348	1.60	13356	19.7	1490	1630	4.9	0.33	1030	199	281	488	11.9	284	280	72.8	5.8
237	16	52000	5562	1.50	13356	19.7	1490	1545	4.3	0.33	1030	197	292	457	11.3	278	261	74.7	5.3
237	17	50000	5348	1.60	13355	17.5	1480	1623	4.5	0.31	1030	193	286	475	11.1	266	250	75.7	5.7
237	18	50000	5348	1.60	13356	19.0	1480	1555	4.6	0.34	1030	195	279	502	11.0	257	250	75.8	5.5
237	19	50000	5348	1.50	13356	19.0	1500	1456	4.6	0.34	1030	199	285	482	10.7	255	248	75.9	5.2
237	20	52000	5562	1.60	13356	19.0	1490	1403	4.8	0.33	1030	208	296	460	10.3	255	250	75.8	4.8
237	21	50000	5348	1.50	13355	19.0	1500	1443	4.5	0.34	1030	220	290	497	10.2	247	261	74.7	5.1
237	22	50000	5348	1.60	13356	19.0	1490	1420	4.5	0.34	1030	234	292	496	10.0	244	272	73.6	5.0
237	23	52000	5562	1.60	13356	19.0	1490	1433	4.5	0.34	1030	244	298	443	9.9	247	282	72.6	4.9

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
238	0	52000	5562	1.50	13356	19.0	1500	1233	4.5	0.34	1030	244	305	464	9.5	245	273	73.5	4.4
238	1	53000	5348	1.60	13356	19.0	1490	1270	4.5	0.34	1030	230	300	486	9.5	241	266	74.2	4.3
238	2	48000	5134	1.60	13356	19.0	1480	1315	4.5	0.34	1030	243	282	527	9.7	229	275	73.3	4.9
238	3	52000	5562	1.50	13356	20.5	1500	1373	4.6	0.37	1030	203	279	540	9.4	221	224	75.2	4.7
238	4	50000	5348	1.50	13356	20.5	1470	1398	4.5	0.37	1030	206	291	559	8.8	220	217	78.9	5.0
238	5	52000	5562	1.60	13356	20.5	1490	1355	4.5	0.37	1030	207	301	507	8.7	225	217	79.0	4.5
238	6	54000	5775	1.60	13356	21.0	1463	1383	4.4	0.39	1030	217	306	.	8.3	221	219	78.8	4.3
238	7	52000	5562	1.60	13356	21.0	1439	1353	4.5	0.39	1030	183	298	.	8.2	214	183	82.3	4.6
238	8	55000	5983	1.50	13356	21.5	1500	1480	4.5	0.40	1030	196	.	.	8.9	.	208	79.0	4.8
238	9	52000	5562	1.60	13356	21.5	1460	1410	4.4	0.41	1030	173	.	.	.	.	.	.	4.8
238	10	52000	5562	1.60	13356	21.5	1450	1413	4.4	0.41	1030	.	291	510	9.4	230	.	.	4.8
238	11	52000	5562	1.60	13356	21.5	1460	1440	4.4	0.41	1030	.	292	458	9.6	237	.	.	4.9
238	12	52000	5562	1.60	13356	21.5	1460	1398	4.4	0.41	1030	169	296	454	9.7	241	191	81.4	4.8
238	13	53000	5569	1.50	13356	21.5	1490	1353	4.4	0.41	1030	151	293	470	9.5	241	169	83.6	4.5
238	14	54000	5775	1.60	13356	22.0	1500	1368	4.3	0.41	1030	184	310	441	9.2	243	201	80.5	4.5
238	15	56000	5990	1.60	13356	22.0	1515	1273	4.3	0.41	1030	174	311	460	9.0	239	187	81.9	4.3
238	16	54000	5775	1.60	13356	22.0	1510	1280	4.5	0.41	1030	175	313	462	9.0	241	187	81.8	4.2
238	17	56000	5990	1.60	13356	22.0	1500	1170	4.3	0.41	1030	204	313	443	.	.	.	.	3.7
238	18	54000	5775	1.50	13356	22.0	1490	1245	4.5	0.41	1030	208	313	415	9.3	245	228	77.9	4.1
238	19	56000	5990	1.60	13356	22.0	1500	1208	4.3	0.41	1030	.	314	423	9.2	245	.	.	3.8
238	20	54000	5775	1.60	13356	22.0	1500	1225	4.5	0.41	1030	197	303	467	9.3	238	216	79.0	4.0
238	21	54000	5775	1.60	13356	22.0	1490	1265	4.5	0.41	1030	190	301	483	9.4	240	211	79.6	4.2
238	22	54000	5776	1.60	13356	20.5	1470	1248	4.6	0.37	1030	219	309	451	9.3	244	241	76.6	4.1
238	23	52000	5562	1.50	13356	20.5	1470	1203	4.5	0.37	1030	198	306	508	9.3	241	218	78.9	4.1

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
239	0	50000	5449	1.45	13130	21.5	1450	1183	4.5	0.40	956	188	295	550	9.3	237	210	78.1	4.5
239	1	52000	5559	1.45	13130	21.5	1490	1129	4.5	0.40	956	173	302	511	9.2	240	192	80.0	4.1
239	2	53000	5443	1.46	13130	21.5	1460	1158	4.5	0.40	956	188	302	482	9.2	241	209	78.1	4.4
239	3	50000	5449	1.45	13130	21.5	1450	1285	4.5	0.40	956	181	289	534	9.5	235	206	78.5	4.9
239	4	48000	5223	1.45	13130	21.5	1420	1315	4.5	0.40	956	187	272	574	9.7	225	216	77.5	5.2
239	5	52000	5558	1.45	13130	21.5	1490	1458	4.6	0.39	956	174	295	552	9.0	231	190	80.2	5.4
239	6	54000	5875	1.45	13130	22.2	1435	1498	4.5	0.41	956	185	292	534	9.3	234	207	78.4	5.3
239	7	54000	5375	1.45	13130	22.7	1455	1548	4.5	0.42	956	217	290	611	8.7	222	231	75.8	5.5
239	8	56000	5393	1.45	13130	24.5	1413	2703	4.3	0.43	956	156	.	.	.	.	.	.	9.2
239	9	60000	6528	1.45	13130	24.5	1460	1280	4.8	0.43	956	152	298	727	7.7	209	149	84.4	4.1
239	10	68000	7339	1.45	13130	24.5	1450	1293	4.7	0.43	955	.	297	694	7.7	209	.	.	3.5
239	11	60000	6529	1.45	13130	25.0	1455	1263	4.5	0.45	956	107	292	713	7.7	205	105	89.1	4.0
239	12	60000	6528	1.45	13130	25.0	1445	1223	4.5	0.45	956	107	297	731	8.1	215	108	88.7	3.9
239	13	58000	6311	1.46	13130	25.0	1465	853	4.5	0.46	956	121	295	746	.	.	.	.	2.8
239	14	58000	6311	1.45	13130	24.5	1420	974	4.5	0.45	956	99	285	.	.	.	.	.	3.2
239	15	56000	6093	1.46	13130	24.0	1440	1012	4.8	0.41	956	92	292	724	8.0	211	93	90.3	3.4
239	16	52000	5558	1.45	13130	22.7	1420	923	4.5	0.42	956	.	306	638	8.5	229	.	.	3.4
239	17	58000	6311	1.45	13130	23.0	1440	843	4.5	0.41	955	.	.	.	.	.	.	.	2.8
239	18	58000	6311	1.45	13130	23.0	1433	853	4.5	0.43	956	.	.	.	.	.	.	.	2.3
239	19	58000	6311	1.45	13130	22.7	1445	745	4.6	0.41	956	.	.	793	9.0	.	.	.	2.5
239	20	58000	6311	1.45	13130	22.7	1450	735	4.5	0.42	955	.	291	721	8.9	225	.	.	2.6
239	21	58000	6311	1.45	13130	22.5	1400	848	4.6	0.40	956	105	276	773	9.3	221	116	87.8	2.3
239	22	58000	6311	1.46	13130	22.3	1450	895	4.5	0.41	956	127	269	798	9.3	216	142	85.2	2.9
239	23	56000	6093	1.45	13130	.	1480	995	4.5	.	956	141	274	726	9.5	225	160	83.2	3.4

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
240	0	54000	5862	1.57	13150	23.5	1470	1073	4.3	0.44	1091	156	277	714	9.8	232	182	83.3	3.3
240	1	53000	5428	1.57	13150	23.0	1430	965	4.5	0.43	1091	171	274	715	10.3	240	208	80.9	3.2
240	2	50000	5428	1.67	13160	22.0	1460	913	4.2	0.44	1091	160	288	689	10.7	261	202	81.5	3.1
240	3	50000	5428	1.57	13160	22.0	1430	1000	4.2	0.44	1091	147	280	691	10.6	251	183	83.2	3.3
240	4	54000	5862	1.67	13160	23.0	1450	1098	4.2	0.46	1091	124	268	763	10.4	235	151	86.1	3.4
240	5	52000	5545	1.67	13150	23.0	1450	1258	4.3	0.44	1091	138	267	711	11.0	250	180	83.5	4.1
240	6	59000	6405	1.67	13150	23.0	1453	1173	4.5	0.43	1091	169	264	741	10.3	231	207	81.1	3.3
240	7	59000	6405	1.67	13150	22.7	1450	1143	4.5	0.42	1091	129	271	740	10.6	244	161	85.2	3.2
240	8	62000	5730	1.57	13150	23.5	1450	1125	4.5	0.43	1091	191	273	743	.	.	.	.	3.0
240	9	60000	5567	1.93	13052	23.5	1463	1132	4.5	0.43	1271	157	268	736	9.8	225	184	85.6	2.7
240	10	60000	6442	1.62	13336	24.5	1430	1203	4.5	0.45	1047	.	260	823	10.0	219	.	.	3.5
240	11	58000	6362	2.29	13023	23.7	1410	1008	4.5	0.44	1512	178	279	713	10.0	240	214	85.9	2.1
240	12	58000	6362	2.29	13023	23.5	1453	1008	4.5	0.44	1512	166	272	749	10.8	251	214	85.9	2.1
240	13	58000	6137	1.43	13502	21.7	1433	1078	4.5	0.40	923	118	284	664	10.4	245	141	84.7	3.7
240	14	56000	6179	1.59	12947	21.2	1510	1158	4.8	0.37	1056	89	298	593	10.3	264	110	89.5	3.6
240	15	58000	6355	1.50	13037	21.0	1540	1058	4.8	0.36	989	103	296	598	10.0	253	123	87.6	3.4
240	16	58000	6208	1.52	13346	19.5	1550	1095	5.2	0.31	979	98	306	550	9.8	252	112	88.6	3.5
240	17	56000	5287	1.80	12725	19.5	1535	1063	5.0	0.32	1216	150	320	463	10.4	292	191	84.3	2.8
240	18	54000	3778	1.42	13351	19.5	1520	1043	5.0	0.32	914	173	315	477	10.5	276	211	76.9	3.9
240	19	50000	5365	1.55	13314	13.7	1510	983	5.0	0.31	1001	134	312	473	10.7	281	168	83.2	3.6
240	20	50000	5429	1.57	13150	17.7	1500	908	5.0	0.30	1091	124	314	451	10.9	290	159	85.4	3.0
240	21	50000	5428	1.67	13150	17.0	1520	883	5.2	0.27	1091	108	312	447	11.5	308	148	86.4	3.0
240	22	.	.	1.67	.	.	.	535	.	.	.	110	.	.	.	.	.	.	.
240	23	.	.	1.67	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
245	0	.	.	1.50	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
245	1	.	.	1.60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
245	2	.	.	1.60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
245	3	.	.	1.60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
245	4	.	.	1.50	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
245	5	.	.	1.60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
245	6	.	.	1.50	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
245	7	.	.	1.60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
245	8	.	.	1.60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
245	9	.	.	1.60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
245	10	.	.	1.50	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
245	11	18000	.	1.60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
245	12	19000	.	1.60	.	.	.	.	.	.	.	.	177	606	.	.	.	.	.
245	13	22000	.	1.50	.	.	.	.	.	.	.	.	135	654	.	.	.	.	.
245	14	28000	.	1.60	.	.	.	.	.	.	.	.	91	775	15.1	.	.	.	.
245	15	60000	5418	1.60	13356	22.5	1375	.	5.3	0.35	1030	.	106	926	14.3	148	.	.	.
245	16	58000	6204	1.50	13356	21.0	1410	1878	5.1	0.34	1030	.	227	933	11.6	222	.	.	5.7
245	17	58000	6204	1.60	13356	17.0	1425	2115	5.3	0.26	1030	.	276	663	11.4	266	.	.	6.5
245	18	58000	6204	1.60	13356	17.0	1445	5440	5.5	0.25	1030	.	296	627	11.7	294	.	.	17
245	19	50000	5348	1.60	13356	17.2	1420	6668	4.6	0.31	1030	.	291	670	11.6	286	.	.	24
245	20	60000	5419	1.50	13356	20.7	1440	5913	4.5	0.37	1030	.	270	730	12.4	291	.	.	17
245	21	58000	6204	1.60	13356	19.2	1460	1843	4.6	0.34	1030	.	285	661	.	.	.	.	5.6
245	22	56000	5390	1.60	13356	18.0	1490	2075	4.8	0.31	1030	.	296	540	.	.	.	.	6.6
245	23	54000	5775	1.60	13356	17.0	1510	2210	4.3	0.30	1030	.	233	489	.	.	.	.	7.3

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
246	0	56000	5990	1.60	13356	17.0	1545	2218	4.8	0.29	1030	48	301	459	8.6	223	50	95.2	7.0
246	1	56000	5990	1.60	13356	17.0	1545	2473	4.9	0.29	1030	58	296	471	7.6	283	55	94.6	7.8
246	2	54000	5776	1.60	13356	17.5	1540	2625	4.9	0.29	1030	48	290	447	7.9	204	47	95.4	8.6
246	3	54000	5775	1.60	13356	17.5	1530	2675	4.9	0.29	1030	48	290	414	7.9	203	47	95.4	8.8
246	4	54000	5776	1.60	13356	17.5	1540	2610	4.9	0.29	1030	58	282	428	8.1	201	58	94.4	8.6
246	5	52000	5562	1.60	13356	19.7	1520	2555	4.9	0.32	1030	58	280	437	8.1	200	58	94.4	8.7
246	6	52000	5562	1.60	13356	17.0	1513	2780	4.9	0.29	1030	48	283	402	8.3	205	48	95.3	9.5
246	7	50000	5348	1.60	13356	15.5	1510	2665	4.9	0.29	1030	67	280	436	7.9	197	66	93.6	9.4
246	8	46000	4923	1.60	13356	15.5	1460	4130	4.7	0.29	1030	48	291	437	12.3	303	71	93.1	15
246	9	54000	5775	1.60	13356	17.3	1465	4520	4.5	0.31	1030	58	284	575	12.3	300	86	91.7	15
246	10	50000	5349	1.60	13356	18.5	1420	4245	4.5	0.34	1030	39	288	588	11.4	289	52	94.9	15
246	11	57000	6397	1.60	13356	18.0	1450	4305	4.8	0.31	1030	58	.	564	11.5	.	78	92.4	13
246	12	56000	5990	1.60	13356	19.5	1450	4920	4.8	0.34	1030	.	.	.	11.4	.	.	.	16
246	13	58000	6204	1.60	13356	20.0	1465	5253	5.1	0.33	1030	.	194	.	.	.	.	.	16
246	14	68000	7273	1.60	13356	21.5	1490	4708	5.7	0.31	1030	.	66	.	.	.	.	.	12
246	15	70000	7487	1.60	13356	23.5	1510	7390	5.3	0.37	1030	48	224	724	8.3	162	48	95.3	19
246	16	92000	9840	1.60	13356	23.5	1600	5645	5.6	0.35	1030	102	256	106	8.8	193	107	89.6	11
246	17	58000	6204	1.60	13356	23.2	1480	2061	5.0	0.39	1030	67	238	171	7.4	161	63	93.9	6.3
246	18	64000	6845	1.60	13356	20.0	1515	1103	4.3	0.34	1030	27	378	682	8.1	269	26	97.4	3.1
246	19	54000	5775	1.60	13356	21.0	1400	1188	4.9	0.36	1030	131	361	569	9.1	279	141	86.3	3.9
246	20	58000	6204	1.60	13356	19.2	1465	1386	4.3	0.33	1030	11	366	561	10.1	309	12	98.8	4.2
246	21	55000	5990	1.60	13356	20.0	1470	1414	4.9	0.35	1030	47	365	484	10.1	308	55	94.6	4.5
246	22	50000	5349	1.60	13356	21.2	1440	1388	4.2	0.42	1030	9	372	451	12.6	410	14	98.6	4.9
246	23	46000	4923	1.60	13356	21.0	1360	935	4.2	0.42	1030	16	369	451	11.3	351	21	97.9	3.5

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
247	0	50000	5183	1.78	13782	19.9	1350	1048	4.9	0.35	1110	18	363	466	.	.	.	.	3.4
247	1	46000	4768	1.78	13782	16.5	1390	940	4.8	0.29	1110	55	358	454	.	.	.	.	3.4
247	2	50000	5183	1.78	13782	14.5	1450	1423	5.1	0.23	1110	3	362	360	.	.	.	.	4.7
247	3	45000	4769	1.78	13782	14.0	1410	2335	4.6	0.25	1110	26	343	390	.	.	.	.	8.3
247	4	42000	4354	1.78	13782	14.5	1390	3173	4.5	0.27	1110	22	335	438	.	.	.	.	12
247	5	44000	4561	1.78	13782	15.0	1355	3173	4.3	0.30	1110	17	331	522	.	.	.	.	12
247	6	45000	4769	1.78	13782	15.7	1360	3108	4.3	0.29	1110	19	337	455	.	.	.	.	11
247	7	48000	4975	1.78	13782	15.2	1340	4075	4.8	0.28	1110	11	334	513	.	.	.	.	14
247	8	52000	5390	1.78	13782	15.7	1320	4988	5.1	0.27	1110	8	.	.	.	.	.	.	16
247	9	52000	5390	1.78	13782	18.7	1310	3640	4.4	0.35	1110	.	.	.	.	.	.	.	12
247	10	52000	5390	1.78	13782	21.0	1380	3033	4.7	0.37	1110	.	.	.	.	.	.	.	9.6
247	11	56000	5805	1.78	13782	20.5	1440	2110	4.5	0.36	1110	.	.	.	.	.	.	.	6.2
247	12	55000	5805	1.78	13782	20.0	1440	2568	5.3	0.31	1110	.	.	.	.	.	.	.	7.6
247	13	55000	5805	1.78	13782	20.5	1440	.	5.4	0.31	1110	.	.	.	.	.	.	.	.
247	14	56000	5805	1.78	13782	21.0	1440	2678	5.1	0.34	1110	4	439	641	10.9	390	5	99.6	7.9
247	15	58000	6012	1.78	13782	21.2	1430	2510	5.1	0.35	1110	24	426	671	11.0	381	30	97.3	7.1
247	16	56000	5805	1.78	13782	21.2	1420	2448	4.8	0.37	1110	32	423	634	11.1	383	41	96.3	7.2
247	17	58000	6012	1.78	13782	21.2	1440	2405	4.9	0.36	1110	85	417	670	10.6	358	101	90.9	6.8
247	18	56000	5805	1.78	13782	21.7	1410	2310	4.5	0.40	1110	112	410	707	10.8	361	138	87.6	6.8
247	19	54000	5597	1.78	13782	22.0	1420	2333	4.8	0.38	1110	128	405	695	11.2	369	163	85.4	7.1
247	20	54000	5597	1.78	13782	21.7	1420	2280	4.9	0.38	1110	142	399	687	11.2	365	180	83.8	6.9
247	21	54000	5597	1.78	13782	20.7	1430	2405	4.9	0.35	1110	178	390	729	11.4	363	230	79.3	7.3
247	22	54000	5597	1.78	13782	20.7	1420	2538	4.7	0.36	1110	229	382	758	11.3	351	294	73.6	7.7
247	23	52000	5390	1.78	13782	21.5	1440	3010	5.1	0.35	1110	240	388	651	11.7	372	321	71.1	9.5

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
248	0	54000	5775	1.60	13356	19.0	1440	2933	4.8	0.33	1030	245	369	.	11.6	361	335	57.5	9.6
248	1	52000	5562	1.50	13356	19.5	1420	3803	4.5	0.35	1030	277	365	485	11.4	350	370	54.1	13
248	2	52000	5562	1.60	13356	21.5	1420	4060	4.6	0.39	1030	240	377	499	.	.	.	.	14
248	3	50000	5348	1.60	13356	19.5	1440	1240	4.6	0.35	1030	278	365	.	.	.	.	.	4.4
248	4	52000	5562	1.60	13356	19.5	1460	2335	4.8	0.34	1030	308	355	.	.	.	.	.	8.0
248	5	52000	5562	1.50	13356	18.5	1470	2798	4.9	0.32	1030	326	350	.	.	.	.	.	9.5
248	6	52000	5562	1.60	13356	18.5	1470	3028	4.6	0.33	1030	313	361	.	.	.	.	.	10
248	7	50000	5348	1.60	13356	19.0	1440	3229	4.8	0.33	1030	266	364	.	.	.	.	.	11
248	8	50000	5348	1.60	13356	19.0	1440	1330	4.6	0.34	1030	.	.	530	.	.	.	.	4.7
248	9	52000	5562	1.60	13356	19.0	1440	1380	4.8	0.33	1030	.	.	540	.	.	.	.	4.7
248	10	48000	5134	1.60	13356	19.0	1458	1515	4.7	0.34	1030	.	.	615	.	.	.	.	5.6
248	11	50000	5348	1.60	13356	19.0	1460	1605	4.7	0.33	1030	107	.	680	.	.	.	.	5.7
248	12	50000	5348	1.60	13356	19.0	1480	1488	4.9	0.33	1030	183	.	634	.	.	.	.	5.3
248	13	50000	5348	1.50	13356	19.0	1430	1509	4.9	0.33	1030	70	.	598	.	.	.	.	5.3
248	14	50000	5348	1.60	13356	19.0	1470	1533	4.8	0.33	1030	70	.	719	.	.	.	.	5.4
248	15	52000	5562	1.60	13356	19.0	1465	1475	4.8	0.33	1030	16	.	611	11.2	.	21	98.0	5.0
248	16	52000	5562	1.60	13356	18.7	1465	1525	4.9	0.32	1030	62	.	526	10.7	.	77	92.5	5.5
248	17	54000	5776	1.50	13356	18.7	1470	1515	4.8	0.33	1030	50	.	591	.	.	.	.	5.0
248	18	54000	5775	1.50	13356	18.7	1495	1400	5.1	0.31	1030	1	355	614	10.6	315	1	99.9	4.5
248	19	54000	5775	1.50	13356	18.7	1495	1465	4.8	0.33	1030	4	362	632	10.5	319	4	99.6	4.8
248	20	54000	5775	1.60	13356	18.7	1470	1533	4.5	0.34	1030	13	359	566	10.6	319	16	98.4	5.0
248	21	52000	5562	1.60	13356	18.7	1460	1430	4.6	0.34	1030	23	350	.	10.7	314	28	97.2	4.9
248	22	52000	5562	1.60	13356	18.7	1480	1438	4.6	0.34	1030	16	358	.	10.9	326	20	98.0	4.9
248	23	52000	5562	1.50	13356	18.0	1475	1575	4.8	0.31	1030	16	359	.	10.9	327	20	98.1	5.4

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
249	0	52000	5590	1.49	13732	19.0	1470	1433	4.5	0.34	930	36	355	.	10.8	312	43	95.3	5.4
249	1	52000	5547	1.49	13155	18.2	1480	1485	4.8	0.32	974	23	362	.	11.0	338	33	96.9	5.4
249	2	50000	5430	1.49	13155	17.5	1480	1595	4.6	0.31	974	3	371	.	11.0	349	4	99.6	5.0
249	3	50000	5430	1.49	13155	16.0	1470	2023	4.9	0.31	974	.	368	.	10.9	343	.	.	7.6
249	4	50000	5430	1.49	13155	17.5	1460	2078	4.5	0.31	974	.	363	.	10.9	337	.	.	7.8
249	5	50000	5430	1.49	13155	18.5	1460	2460	4.6	0.33	974	.	362	.	10.8	333	.	.	9.2
249	6	50000	5430	1.49	13155	19.5	1470	2430	4.5	0.33	974	.	367	.	10.7	334	.	.	9.2
249	7	58000	6299	1.49	13155	19.0	1480	2328	4.9	0.33	974	.	358	.	10.3	312	.	.	7.5
249	8	55000	5361	1.49	13155	19.0	1490	2168	4.3	0.33	974	.	.	.	10.3	.	.	.	7.3
249	9	54000	5364	1.49	13155	19.5	1425	2313	4.7	0.34	974	.	.	.	.	.	.	.	8.0
249	10	54000	5364	1.49	13155	19.7	1460	2490	5.2	0.31	974	.	.	.	.	.	.	.	9.5
249	11	54000	5364	1.49	13155	19.5	1470	2413	4.3	0.34	974	3	367	611	.	.	.	.	8.4
249	12	58000	6299	1.49	13155	19.5	1520	2250	4.5	0.35	974	4	329	656	10.7	299	5	99.5	7.3
249	13	50000	5430	1.49	13155	19.5	1480	1763	4.5	0.35	974	14	343	621	10.8	314	18	98.1	6.6
249	14	60000	6516	1.49	13155	19.2	1490	1720	5.4	0.30	974	13	344	662	11.0	324	17	98.2	5.4
249	15	62000	6733	1.49	13155	19.7	1505	1733	5.1	0.32	974	29	341	641	10.9	317	37	96.2	5.2
249	16	62000	6733	1.49	13155	18.7	1550	1758	5.4	0.29	974	105	335	731	10.6	301	131	86.6	5.3
249	17	64000	6950	1.49	13155	19.0	1550	1829	5.4	0.29	974	105	336	585	10.5	301	130	86.6	5.4
249	18	58000	5299	1.49	13155	19.0	1510	1873	4.5	0.34	974	194	326	642	10.7	299	246	74.7	6.1
249	19	54000	5364	1.49	13155	19.0	1470	1550	4.5	0.34	974	117	337	647	11.9	345	167	82.6	5.4
249	20	52000	5547	1.49	13155	19.0	1470	1655	4.8	0.33	974	44	348	614	12.4	379	66	93.2	6.0
249	21	52000	5547	1.49	13155	19.0	1470	1570	4.9	0.33	974	31	364	514	12.9	422	49	94.9	5.7
249	22	52000	5547	1.49	13155	18.5	1470	1553	4.8	0.32	974	35	360	531	13.0	424	57	94.1	5.6
249	23	52000	5547	1.49	13155	19.0	1460	1583	4.8	0.33	974	30	359	551	12.8	411	48	95.1	5.7

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
252	0	52000	5562	1.60	13356	17.5	1480	3613	4.8	0.30	1030	26	366	577	16.0	679	67	93.5	12
252	1	53000	5569	1.60	13356	18.5	1480	3723	4.6	0.33	1030	26	367	632	15.9	674	66	93.6	12
252	2	54000	5776	1.60	13356	19.5	1480	2888	4.5	0.35	1030	30	373	625	15.8	674	76	92.6	9.5
252	3	52000	5562	1.60	13355	19.0	1480	1490	4.8	0.33	1030	25	381	583	15.8	688	63	93.9	5.1
252	4	54000	5776	1.60	13356	18.5	1480	1495	4.6	0.33	1030	21	371	647	15.7	655	52	95.0	4.9
252	5	52000	5562	1.60	13356	18.5	1480	1595	4.6	0.33	1030	35	372	653	15.6	638	84	91.8	5.4
252	6	52000	5562	1.60	13356	19.0	1480	1530	4.6	0.34	1030	28	381	561	15.2	612	62	94.0	5.2
252	7	54000	5775	1.60	13356	19.0	1490	1573	4.5	0.34	1030	32	376	644	14.9	572	67	93.5	5.2
252	8	54000	5775	1.60	13356	19.0	1440	1543	4.5	0.34	1030	37	.	.	5.8	.	31	97.0	5.1
252	9	54000	5776	1.60	13356	19.0	1453	1570	4.6	0.34	1030	.	349	617	5.9	212	.	.	5.2
252	10	54000	5775	1.60	13355	19.0	1458	1545	4.8	0.33	1030	24	357	611	.	.	.	.	5.1
252	11	54000	5775	1.60	13356	19.0	1460	1673	4.8	0.33	1030	30	346	605	11.3	328	40	96.2	5.5
252	12	52000	5562	1.60	13356	18.0	1453	1768	4.8	0.31	1030	25	351	609	11.3	333	33	96.8	6.0
252	13	48000	5134	1.60	13355	18.5	1443	1728	4.6	0.33	1030	32	360	554	11.3	344	43	95.8	6.4
252	14	54000	5776	1.60	13355	18.0	1470	1638	4.8	0.31	1030	22	350	617	11.2	331	29	97.2	5.4
252	15	54000	5776	1.60	13356	18.0	1470	1633	4.8	0.31	1030	28	346	634	11.1	322	36	96.5	5.4
252	16	52000	5562	1.60	13356	18.0	1470	1633	4.8	0.31	1030	36	352	602	11.2	331	47	95.4	5.6
252	17	50000	5348	1.60	13356	18.0	1470	1723	4.8	0.31	1030	27	338	648	11.0	312	34	96.7	6.1
252	18	54000	5776	1.60	13356	18.0	1470	1785	4.8	0.31	1030	52	347	612	11.1	325	68	93.4	5.9
252	19	54000	5776	1.60	13356	18.0	1470	1830	4.8	0.31	1030	40	338	626	11.1	315	52	95.0	6.0
252	20	52000	5562	1.60	13356	18.0	1470	1770	4.8	0.31	1030	52	329	577	11.0	304	67	93.5	6.0
252	21	52000	5562	1.60	13355	18.0	1470	1633	4.6	0.32	1030	72	350	559	11.5	340	97	90.6	5.6
252	22	54000	5775	1.60	13356	18.0	1470	1555	4.8	0.31	1030	27	342	602	11.5	332	37	96.4	5.1
252	23	54000	5776	1.60	13356	18.0	1470	1515	4.6	0.32	1030	45	328	649	11.5	318	61	94.1	5.0

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
253	0	52000	5562	1.60	13356	17.5	1470	1620	4.8	0.30	1030	64	323	651	11.6	316	87	91.5	5.5
253	1	52000	5562	1.60	13356	17.0	1460	2793	4.6	0.30	1030	68	344	529	11.9	351	96	90.7	9.5
253	2	52000	5562	1.50	13356	17.5	1470	3353	4.5	0.31	1030	23	340	603	11.3	325	31	97.0	11
253	3	56000	5990	1.60	13356	18.5	1470	4060	4.5	0.33	1030	35	335	677	10.8	303	44	95.8	13
253	4	56000	5990	1.60	13356	20.0	1480	3095	4.5	0.35	1030	44	331	711	10.5	299	54	94.7	9.8
253	5	56000	5990	1.60	13356	20.5	1460	1765	4.8	0.35	1030	44	345	510	11.0	319	56	94.6	5.6
253	6	56000	5990	1.60	13356	19.5	1450	.	4.5	0.35	1030	29	345	542	11.1	321	37	96.4	.
253	7	54000	5775	1.50	13356	19.5	1450	1995	4.5	0.33	1030	36	342	640	11.2	321	46	95.5	6.5
253	8	54000	5775	1.60	13356	19.5	1458	1720	4.5	0.35	1030	39	354	.	.	.	.	.	5.6
253	9	56000	5990	1.50	13356	19.0	1463	1928	4.9	0.32	1030	25	.	.	.	.	.	.	6.1
253	10	54000	5775	1.60	13356	19.7	1463	2080	4.6	0.35	1030	.	375	668	10.7	336	.	.	6.8
253	11	56000	5990	1.60	13356	19.5	1475	1908	4.8	0.34	1030	1	376	746	10.5	331	1	99.9	6.0
253	12	56000	5990	1.60	13356	20.0	1465	1825	5.0	0.33	1030	13	385	677	10.5	339	15	98.5	5.8
253	13	58000	6204	1.60	13356	20.0	1470	1930	5.0	0.33	1030	6	.	.	.	.	.	.	5.9
253	14	60000	6419	1.60	13356	19.7	1492	1898	4.8	0.34	1030	.	380	737	10.2	324	.	.	5.6
253	15	60000	6419	1.60	13356	20.7	1520	1745	4.5	0.37	1030	1	363	738	9.9	308	1	99.9	5.2
253	16	58000	6204	1.60	13356	20.7	1490	1823	4.8	0.36	1030	16	369	713	10.0	309	19	98.2	5.6
253	17	62000	6632	1.60	13356	20.7	1520	1795	4.8	0.36	1030	5	364	745	10.0	306	5	99.5	5.1
253	18	56000	5990	1.60	13356	21.0	1480	1718	4.9	0.35	1030	20	365	806	10.1	309	24	97.7	5.4
253	19	56000	5990	1.60	13356	19.2	1510	1755	4.8	0.33	1030	50	360	785	10.1	305	59	94.3	5.6
253	20	56000	5990	1.60	13356	19.2	1510	1855	4.7	0.34	1030	76	380	641	10.4	331	92	91.1	5.9
253	21	56000	5990	1.60	13356	18.2	1510	1813	4.5	0.33	1030	30	373	663	10.6	331	36	96.5	5.7
253	22	58000	6204	1.60	13356	18.5	1520	1800	4.9	0.32	1030	44	364	665	10.6	325	54	94.7	5.5
253	23	56000	5990	1.60	13356	15.5	1530	1710	4.3	0.32	1030	71	373	578	10.9	341	90	91.2	5.4

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
254	0	56000	5990	1.50	13356	18.2	1570	1633	4.8	0.32	1030	49	360	568	10.8	325	61	94.0	5.2
254	1	56000	5990	1.60	13355	17.5	1540	1758	4.8	0.30	1030	58	357	588	10.8	323	73	92.9	5.6
254	2	56000	5990	1.60	13356	19.0	1520	2188	4.8	0.31	1030	63	357	568	10.8	324	80	92.2	6.9
254	3	59000	6204	1.50	13356	18.5	1540	1925	4.8	0.32	1030	59	354	510	10.7	317	74	92.9	5.9
254	4	56060	5990	1.60	13355	18.7	1520	2011	4.6	0.34	.030	52	345	543	10.4	300	63	93.9	6.4
254	5	56000	5990	1.50	13356	19.3	1520	2193	4.6	0.33	1030	73	354	573	10.5	311	89	91.4	6.9
254	6	60000	5418	1.50	13356	18.3	1555	2558	4.9	0.31	1030	47	354	526	10.3	306	56	94.6	7.5
254	7	63000	5733	1.60	13356	19.0	1610	4556	5.0	0.32	1030	55	343	564	9.6	277	62	94.0	13
254	8	70000	7487	1.60	13356	20.2	1565	4808	4.9	0.34	1030	82	.	.	.	.	.	.	12
254	9	65000	6952	1.60	13356	21.2	1510	4340	4.5	0.39	1030	.	312	678	8.7	234	.	.	12
254	10	50000	5348	1.60	13356	20.7	1475	2470	4.5	0.38	1030	15	336	791	9.5	269	16	98.4	8.8
254	11	60000	5418	1.60	13356	21.5	1490	2230	5.0	0.36	1030	1	351	733	10.1	298	1	99.3	5.6
254	12	58000	6204	1.60	13356	20.7	1450	2225	4.5	0.37	1030	1	352	749	10.5	310	1	99.9	5.8
254	13	59000	6204	1.60	13356	21.0	1470	2145	4.5	0.38	1030	1	362	775	10.5	317	1	99.9	6.6
254	14	58000	5204	1.60	13356	21.3	1470	2493	4.5	0.40	1030	5	363	756	10.1	307	6	99.5	7.6
254	15	56000	5990	1.60	13356	20.2	1490	2335	4.2	0.40	1030	3	352	835	10.0	295	4	99.7	7.4
254	16	52000	5562	1.60	13356	21.0	1510	2348	3.3	0.38	1030	16	310	701	9.1	239	17	98.3	8.0
254	17	60000	6418	1.60	13356	21.5	1550	1475	4.0	0.45	1030	96	245	1	8.0	173	94	90.9	4.4
254	18	62000	5532	1.60	13356	21.5	1495	1610	4.5	0.39	1030	205	325	313	9.3	255	226	78.1	4.5
254	19	62000	5532	1.60	13356	19.7	1530	1880	4.6	0.35	1030	170	339	871	9.7	277	193	81.3	5.4
254	20	60000	6418	1.60	13356	19.0	1540	2393	4.9	0.33	1030	87	336	739	9.7	275	99	90.4	7.1
254	21	60000	5418	1.50	13356	19.0	1540	2400	4.9	0.33	1030	87	338	786	9.8	278	99	90.3	7.1
254	22	60000	6419	1.60	13356	19.0	1540	2625	4.6	0.34	1030	112	327	734	9.8	269	128	87.6	7.8
254	23	60000	6419	1.60	13356	19.0	1530	2450	4.7	0.33	1030	123	334	762	10.0	280	143	86.1	7.2

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
255	0	63000	5423	1.95	13334	19.5	1520	2659	4.3	0.33	1264	114	336	582	10.3	283	133	89.5	6.4
255	1	59000	5333	1.75	13089	19.5	1520	2650	5.0	0.32	1150	98	338	639	10.0	299	118	89.8	7.3
255	2	60000	5539	1.99	12910	19.5	1520	2240	4.9	0.33	1325	63	340	654	10.1	295	108	92.4	5.2
255	3	56000	5113	1.82	13097	19.2	1520	2340	4.9	0.33	1196	80	345	610	10.1	298	96	92.0	5.4
255	4	56000	6126	1.75	13050	19.2	1520	2480	4.5	0.34	1159	55	351	585	10.0	301	66	94.3	7.0
255	5	60600	6578	1.78	13046	20.5	1500	2790	4.5	0.37	1173	40	313	610	9.3	252	44	96.2	7.2
255	6	64000	7004	1.62	13053	20.0	1520	2260	4.9	0.34	1067	74	349	634	9.7	292	86	91.9	6.1
255	7	64600	7383	1.65	12908	20.7	1525	4095	4.5	0.37	1232	34	336	677	8.5	257	36	97.0	9.5
255	8	66000	7093	1.81	13232	21.5	1510	4158	4.5	0.39	1171	52	280	866	8.8	200	52	95.6	9.8
255	9	65000	6914	1.53	13431	21.5	1520	2828	4.5	0.39	1011	79	.	.	.	.	.	.	7.8
255	10	63000	5321	1.53	13144	22.5	1490	3048	4.5	0.42	1066	.	.	.	.	.	.	.	8.7
255	11	52000	6529	1.74	13361	22.0	1500	2520	4.2	0.44	1120	.	287	894	8.2	207	.	.	6.6
255	12	62000	6762	1.85	13098	22.0	1500	2223	4.2	0.44	1214	67	295	882	8.4	220	69	94.3	5.4
255	13	52000	5563	1.57	13232	22.0	1510	2113	4.4	0.42	1081	48	298	869	8.4	213	49	95.5	5.8
255	14	58000	5273	1.74	13135	22.0	1510	2535	3.9	0.47	1134	46	309	839	8.6	232	48	95.7	7.0
255	15	62000	6620	1.63	13379	22.0	1500	2693	4.3	0.46	1049	55	288	991	7.8	201	54	94.9	7.6
255	16	58000	5232	1.63	13252	22.0	1480	2653	4.0	0.45	1030	133	320	950	8.8	239	138	86.7	8.0
255	17	60000	6605	1.63	12976	22.5	1480	3000	4.0	0.47	1080	61	316	960	8.5	239	64	94.1	8.4
255	18	63000	6542	1.51	13132	22.0	1500	3058	4.0	0.46	1057	62	304	994	8.3	224	64	94.0	8.8
255	19	62000	6759	1.65	13122	22.2	1480	2593	4.0	0.46	1088	79	314	995	8.4	233	81	92.5	7.0
255	20	58000	5183	1.64	13431	22.2	1500	2473	4.1	0.45	1052	90	331	954	8.8	249	95	91.0	7.4
255	21	60000	5537	1.53	13113	23.0	1490	2563	4.3	0.47	1049	44	315	990	8.3	237	46	95.6	7.4
255	22	60000	6588	1.55	13011	22.2	1490	2810	4.2	0.44	1097	91	317	992	8.7	243	97	91.2	7.8
255	23	60000	6490	1.57	13238	22.7	1490	2655	4.0	0.47	1022	78	317	951	8.7	239	82	92.0	7.9

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
256	0	60000	6504	1.83	13179	23.5	1480	2328	4.2	0.47	1194	53	312	743	8.4	231	54	95.4	5.9
256	1	60000	6504	1.83	13179	23.7	1490	2263	4.2	0.47	1194	73	321	683	8.3	236	75	93.7	5.8
256	2	60000	6504	1.83	13179	23.5	1490	2185	4.3	0.45	1194	47	330	865	8.6	248	49	95.9	5.6
256	3	62000	6721	1.83	13179	23.5	1500	1908	4.2	0.47	1194	31	328	873	8.4	244	32	97.3	4.7
256	4	62000	6721	1.83	13179	23.5	1500	1778	4.2	0.47	1194	24	352	861	8.6	265	25	97.9	4.4
256	5	60000	6504	1.83	13179	23.0	1500	1838	4.5	0.43	1194	13	356	797	8.8	273	13	98.9	4.7
256	6	62000	6721	1.83	13179	23.0	1500	.	4.5	0.43	1194	13	358	795	8.9	277	14	98.9	.
256	7	65000	7045	1.83	13179	22.5	1490	.	4.5	0.40	1194	5	358	805	8.8	274	6	99.5	.
256	8	68000	7371	1.83	13179	23.0	1500	.	4.6	0.41	1194	3	327	821	8.7	243	3	99.7	.
256	9	66000	7154	1.83	13179	23.7	1530	.	4.7	0.42	1194	65	.	.	.	.	.	.	.
256	10	64000	6937	1.83	13179	23.5	1540	.	4.4	0.44	1194	51	.	.	.	.	.	.	.
256	11	64000	6937	1.83	13179	23.0	1510	2120	4.3	0.44	1194	.	301	830	8.8	292	.	.	5.1
256	12	64000	6937	1.83	13179	23.0	1490	2045	4.4	0.43	1194	46	338	896	8.5	255	49	95.9	4.9
256	13	64000	6937	1.83	13179	23.0	1540	2173	4.4	0.44	1194	65	339	821	8.6	254	68	94.3	5.2
256	14	64000	6914	1.71	13418	23.0	1510	1999	4.5	0.41	1096	57	341	858	8.4	249	58	94.7	5.2
256	15	60000	6605	1.89	12977	22.7	1520	2030	4.1	0.46	1252	61	335	497	8.6	257	65	94.8	4.9
256	16	62000	6898	2.12	12841	22.7	1520	2000	4.5	0.42	1419	76	329	250	8.3	248	80	94.4	4.1
256	17	62000	6873	2.56	12896	22.5	1520	1780	4.5	0.40	1768	.	353	847	8.9	279	.	.	3.1
256	18	64000	6907	2.05	13237	20.5	1520	1403	4.8	0.35	1332	.	347	880	9.1	271	.	.	3.0
256	19	60000	6475	1.96	13236	20.0	1500	2600	4.6	0.36	1273	.	341	725	9.1	265	.	.	4.8
256	20	60000	6327	1.83	13132	20.0	1530	3240	4.6	0.36	1211	.	351	712	9.3	281	.	.	8.1
256	21	60000	5526	2.31	12936	21.0	1510	3645	4.5	0.39	1335	47	342	792	9.2	275	53	96.0	8.3
256	22	60000	6467	1.92	13254	21.5	1510	3568	4.3	0.41	1246	52	334	884	9.0	258	56	95.5	8.7
256	23	59000	6307	1.84	13363	21.5	1500	3417	4.3	0.42	1164	55	330	871	8.9	251	58	95.1	8.9

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
257	0	60000	5461	1.73	13256	23.0	1500	3040	4.2	0.46	1102	45	318	867	8.8	241	48	95.7	8.4
257	1	60000	6421	1.59	13359	23.5	1500	2990	4.3	0.45	1088	39	351	933	8.6	261	40	96.3	8.4
257	2	60000	6363	2.00	13470	23.5	1500	2810	4.2	0.47	1277	48	340	805	8.7	252	50	96.1	6.7
257	3	60000	5532	2.02	13123	23.5	1500	2358	4.2	0.47	1323	25	351	814	8.7	267	26	95.0	5.4
257	4	60000	5717	1.63	12750	23.5	1500	2345	4.2	0.47	1098	27	340	817	8.8	268	29	97.4	6.5
257	5	60000	6256	1.60	13702	23.5	1500	2072	4.2	0.47	1054	38	351	776	9.0	263	39	96.3	6.0
257	6	60000	5307	1.55	13590	23.0	1490	2153	4.2	0.46	981	32	340	773	9.3	263	34	96.5	6.7
257	7	60000	6212	1.53	13799	23.0	1500	2098	4.3	0.44	991	28	351	752	9.3	268	29	97.0	6.4
257	8	60000	6405	1.77	13383	23.0	1500	1985	4.5	0.43	1137	30	.	745	.	.	.	.	5.3
257	9	60000	6424	1.89	13342	23.0	1590	1943	4.5	0.43	1160	48	371	734	9.3	292	53	95.5	5.1
257	10	58000	5126	1.43	13525	22.0	1500	2065	4.0	0.46	850	19	334	693	8.9	251	20	97.8	7.3
257	11	54000	5335	1.53	13037	23.5	1413	1593	4.5	0.38	1051	19	357	627	10.4	315	23	97.8	5.1
257	12	50000	3313	1.59	13443	18.5	1413	630	4.5	0.34	1017	19	357	656	11.6	349	26	97.5	2.3
257	13	49000	5225	1.41	13336	18.0	1413	1358	4.5	0.33	905	19	351	534	11.3	332	27	97.1	5.6
257	14	45000	4969	2.25	13224	19.2	1480	.	4.3	0.35	1463	38	347	666	11.5	343	52	96.4	.
257	15	48000	5185	2.25	13224	18.2	1440	.	4.3	0.39	1463	38	327	661	11.4	316	51	95.5	.
257	16	50000	5401	2.25	13224	18.0	1450	.	4.2	0.35	1463	5	338	620	11.1	318	6	99.6	.
257	17	50000	5401	2.25	13224	18.0	1440	.	4.2	0.36	1463	10	329	700	11.1	310	13	99.1	.
257	18	50000	5401	2.25	13224	18.0	1460	.	4.3	0.34	1463	26	322	820	10.7	292	33	97.8	.
257	19	50000	5401	2.25	13224	19.0	1440	.	4.2	0.35	1463	62	323	821	10.8	296	79	94.6	.
257	20	50000	5401	2.25	13224	19.0	1430	.	4.5	0.33	1463	101	332	540	11.3	318	134	90.8	.
257	21	.	.	2.25	.	.	.	.	.	.	.	77	319	757	11.3	.	.	.	.
257	22	48000	5185	2.25	13224	18.5	1420	.	4.5	0.34	1463	81	301	871	11.4	292	109	92.6	.
257	23	50000	5401	2.25	13224	19.5	1460	.	4.5	0.34	1463	106	292	851	11.4	284	144	90.2	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT ELR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
258	0	52000	5519	1.95	13450	19.2	1480	.	4.5	0.34	1245	118	306	776	10.8	275	148	88.1	.
258	1	50000	5307	1.95	13450	19.0	1480	.	4.5	0.33	1246	104	305	747	10.8	273	130	89.6	.
258	2	52000	5519	1.95	13450	19.0	1470	.	4.5	0.35	1246	54	315	614	10.9	283	68	94.5	.
258	3	50000	5307	1.95	13450	19.5	1430	.	4.5	0.34	1246	54	307	734	11.1	285	69	94.4	.
258	4	50000	5307	1.95	13450	18.5	1410	.	4.3	0.34	1246	82	286	848	11.4	272	109	91.3	.
258	5	50000	5307	1.95	13450	18.5	1430	.	4.4	0.35	1246	99	274	887	11.7	271	137	89.0	.
258	6	50000	5307	1.95	13450	18.5	1450	.	4.5	0.34	1246	88	286	729	11.4	272	116	90.7	.
258	7	46000	4982	1.95	13460	17.5	1400	.	4.3	0.34	1246	85	295	683	11.5	285	115	90.8	.
258	8	46000	4982	1.95	13450	18.2	1350	.	4.3	0.35	1246	.	.	.	.	.	.	.	.
258	9	44000	4570	1.95	13450	19.0	1375	.	4.5	0.35	1246	153	254	940	12.2	265	221	82.2	.
258	10	46000	4882	1.95	13450	19.2	1400	.	4.3	0.37	1245	94	286	753	11.5	277	127	89.8	.
258	11	46000	4682	1.95	13450	19.0	1395	.	4.2	0.38	1246	88	290	685	11.8	288	122	90.2	.
258	12	50000	5307	1.95	13450	18.7	1425	.	4.4	0.35	1246	97	283	763	11.5	280	131	89.5	.
258	13	50000	5307	1.95	13450	19.0	1395	.	4.3	0.36	1246	96	284	801	11.9	286	134	89.2	.
258	14	45000	4982	1.95	13450	19.0	1370	.	4.3	0.36	1246	123	268	802	12.0	274	175	86.0	.
258	15	46000	4982	1.95	13460	19.2	1390	.	4.3	0.37	1246	120	272	713	11.8	270	166	86.6	.
258	16	45000	4982	1.95	13450	19.2	1380	.	4.2	0.38	1246	125	275	742	11.6	269	170	86.4	.
258	17	45000	4982	1.95	13450	20.5	1370	.	4.3	0.39	1246	145	262	826	11.6	257	197	84.2	.
258	18	45000	4982	1.95	13450	20.7	1370	.	4.2	0.41	1245	173	255	822	11.5	245	232	81.4	.
258	19	45000	4982	1.95	13450	20.7	1360	.	4.3	0.40	1245	199	244	890	11.5	239	272	78.2	.
258	20	46000	4982	1.95	13450	20.7	1400	.	4.5	0.38	1246	223	245	762	11.5	235	299	75.0	.
258	21	48000	5094	1.95	13450	20.0	1400	.	4.5	0.37	1245	234	251	690	11.5	241	314	74.8	.
258	22	45000	4982	1.95	13450	19.0	1430	.	4.2	0.38	1246	251	258	735	11.3	243	329	73.6	.
258	23	46000	4982	1.95	13460	18.0	1420	.	4.2	0.36	1246	254	271	806	10.7	241	315	74.7	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
259	0	52000	5704	2.18	13023	17.5	1480	.	4.6	0.31	1439	256	259	743	11.5	258	355	75.4	.
259	1	48000	5265	2.18	13023	17.3	1433	.	4.5	0.31	1439	274	287	675	10.6	261	346	75.9	.
259	2	54000	5924	2.18	13023	17.0	1520	.	4.3	0.31	1439	245	281	693	10.8	261	317	78.0	.
259	3	50000	5485	2.18	13023	17.5	1453	.	4.5	0.32	1439	180	292	661	11.4	287	247	82.9	.
259	4	52000	5704	2.18	13023	17.5	1510	.	4.6	0.31	1439	221	288	695	10.5	260	278	80.7	.
259	5	52000	5704	2.18	13023	18.0	1490	.	4.5	0.32	1439	229	296	661	10.7	272	294	79.6	.
259	6	48000	5265	2.18	13023	18.7	1400	.	4.5	0.34	1439	195	303	590	10.9	285	255	82.3	.
259	7	48000	5265	2.18	13023	19.0	1395	.	4.5	0.35	1439	174	277	652	11.8	284	249	82.7	.
259	8	52000	5704	2.18	13023	19.0	1410	.	4.5	0.35	1439	179	264	750	11.1	252	238	83.4	.
259	9	50000	5485	2.18	13023	19.5	1430	.	4.3	0.36	1439	198	269	732	10.7	247	243	83.1	.
259	10	60000	6582	2.18	13023	19.5	1550	.	4.9	0.33	1439	194	287	678	10.0	248	233	83.8	.
259	11	60000	6582	2.18	13023	21.2	1490	.	4.3	0.41	1439	193	278	892	8.8	216	208	85.[illegible]	.
259	12	58000	6362	2.18	13023	21.0	1423	.	4.3	0.40	1439	111	289	874	9.3	234	125	91.3	.
259	13	60000	6582	2.18	13023	22.5	1453	.	4.6	0.41	1439	144	287	859	9.7	240	167	88.4	.
259	14	58000	6362	2.18	13023	21.7	1482	.	4.8	0.37	1439	138	293	793	9.9	255	129	91.1	.
259	15	58000	6362	2.18	13023	22.0	1465	.	4.1	0.45	1439	153	291	800	9.9	247	181	87.4	.
259	16	58000	6362	2.18	13023	21.5	1493	.	4.7	0.38	1439	186	277	873	10.0	239	224	84.4	.
259	17	56000	6143	2.18	13023	20.7	1460	.	4.3	0.40	1439	239	277	734	10.0	239	287	80.0	.
259	18	60000	6582	2.18	13023	22.7	1513	.	4.5	0.38	1439	222	274	730	9.5	227	256	82.2	.
259	19	58000	6362	2.18	13023	21.5	1520	.	4.6	0.39	1439	188	288	715	10.0	248	225	84.4	.
259	20	60000	6582	2.18	13023	21.2	1530	.	4.5	0.38	1439	172	297	583	9.7	248	199	86.2	.
259	21	60000	6582	2.18	13023	21.5	1530	.	4.6	0.39	1439	207	292	737	9.7	245	241	83.2	.
259	22	60000	6582	2.18	13023	21.5	1540	.	4.8	0.37	1439	218	296	674	9.9	251	258	82.1	.
259	23	60000	6582	2.18	13023	21.0	1555	.	4.6	0.38	1439	180	302	633	10.0	260	216	85.0	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LB	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
260	0	58000	6513	2.19	12727	20.5	1520	.	4.5	0.37	1480	132	311	640	10.6	290	172	88.4	.
260	1	56000	6285	2.19	12727	20.0	1520	.	4.9	0.34	1480	162	301	674	10.2	270	202	86.3	.
260	2	55000	6285	2.19	12727	20.0	1520	.	4.7	0.35	1480	133	309	598	10.3	280	168	88.6	.
260	3	56000	6285	2.19	12727	20.0	1500	.	4.6	0.35	1460	132	310	667	10.4	283	168	88.6	.
260	4	58000	6513	2.19	12727	20.5	1530	.	4.5	0.37	1480	164	302	779	10.2	271	205	86.2	.
260	5	60000	6735	2.19	12727	21.5	1520	.	4.9	0.36	1480	136	310	685	10.2	277	170	88.5	.
260	6	60000	6735	2.19	12727	22.5	1520	.	4.9	0.38	1480	127	304	806	9.7	261	152	89.7	.
260	7	64000	7134	2.19	12727	23.3	1450	.	4.9	0.40	1480	.	248	.	8.1	185	.	.	.
260	8	68000	7533	2.19	12727	23.5	1500	.	4.5	0.42	1460	.	.	.	.	.	.	.	.
260	9	66000	7423	2.19	12727	24.0	1465	.	5.0	0.40	1460	200	309	993	8.2	233	210	85.8	.
260	10	64000	7184	2.19	12727	24.7	1495	.	4.3	0.47	1480	311	291	1	8.0	216	322	78.3	.
260	11	69000	6735	2.19	12727	23.7	1450	.	4.0	0.49	1460	188	294	1	8.2	222	197	86.7	.
260	12	60000	6735	2.19	12727	23.5	1460	.	4.8	0.41	1460	97	309	694	8.7	242	106	92.9	.
260	13	58000	6513	2.19	12727	13.5	1480	.	4.9	0.31	1460	67	310	880	9.0	255	75	95.0	.
260	14	35000	3929	2.19	12727	22.2	1470	.	4.3	0.43	1460	132	311	848	9.0	251	148	90.0	.
260	15	54000	6061	2.19	12727	23.7	1485	.	3.0	0.65	1460	73	300	828	9.4	249	85	94.3	.
260	16	60000	6735	2.19	12727	22.0	1520	.	4.0	0.46	1480	334	163	230	7.0	112	320	78.3	.
260	17	54000	6361	2.19	12727	22.0	1510	.	3.6	0.51	1460	158	268	851	8.2	203	166	88.8	.
260	18	52000	5937	2.19	12727	23.0	1490	.	3.4	0.56	1480	128	246	867	8.5	190	137	90.7	.
260	19	52000	5937	2.19	12727	23.2	1500	.	3.4	0.57	1480	146	231	944	8.4	178	156	89.4	.
260	20	54000	6361	2.19	12727	24.2	1500	.	3.6	0.56	1480	311	180	245	8.0	133	322	78.2	.
260	21	54000	6361	2.19	12727	25.0	1500	.	3.5	0.58	1480	256	184	1	7.8	135	261	82.4	.
260	22	54000	6361	2.19	12727	24.5	1500	.	3.1	0.65	1460	530	149	1	7.5	106	527	64.4	.
260	23	52000	5816	2.14	12773	24.0	1500	.	3.4	0.58	1441	420	170	475	7.6	122	422	70.7	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY

EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
261	0	50000	5553	2.58	12851	22.5	1500	.	3.1	0.60	1726	228	197	.	8.3	148	239	95.2	.
261	1	50000	5553	2.58	12851	23.0	1500	.	3.3	0.58	1726	209	199	.	8.3	150	219	37.4	.
261	2	52000	5781	2.59	12851	24.0	1490	.	3.4	0.58	1726	205	198	.	8.1	147	212	87.7	.
251	3	54000	6003	2.58	12851	24.0	1470	.	3.3	0.51	1725	159	175	.	7.8	127	161	90.7	.
261	4	55000	5225	2.58	12851	24.5	1500	.	3.4	0.59	1726	254	164	.	7.6	117	252	85.4	.
261	5	54000	5003	2.58	12851	24.5	1500	.	3.4	0.59	1726	341	160	.	7.5	113	336	93.5	.
261	6	54000	5909	2.02	13058	22.5	1450	.	3.4	0.54	1330	193	202	.	7.9	145	193	85.5	.
261	7	52000	5781	2.59	12851	21.5	1460	.	3.3	0.54	1726	160	200	.	8.1	143	165	90.4	.
261	8	52000	5781	2.59	12851	21.5	1450	.	3.5	0.51	1725	141	229	.	8.6	177	152	91.2	.
261	9	52000	5781	2.58	12851	21.5	1465	.	3.2	0.56	1726	.	.	.	.	.	.	.	.
251	10	52000	5781	2.59	12851	23.0	1450	.	3.5	0.53	1725	87	207	.	.	.	.	.	.
261	11	54000	6003	2.59	12851	23.0	1470	.	3.4	0.56	1726	104	194	.	9.8	155	115	93.3	.
261	12	55000	5114	2.58	12851	22.7	1480	.	3.4	0.56	1726	110	.	.	8.8	.	120	93.0	.
261	13	60000	6570	2.58	12851	22.7	1500	.	3.5	0.53	1726	137	.	.	8.7	.	149	91.4	.
261	14	60000	6570	2.58	12851	23.0	1510	.	3.5	0.53	1726	202	.	.	8.2	.	210	87.8	.
261	15	64000	7115	2.59	12851	23.2	1500	.	4.0	0.48	1726	308	.	.	8.0	.	315	81.7	.
261	16	55000	5225	2.53	12851	23.5	1475	.	3.3	0.59	1725	268	.	.	7.9	.	271	94.3	.
261	17	58000	6275	2.11	13202	22.7	1490	.	3.3	0.57	1374	542	.	.	7.5	.	519	62.2	.
261	18	58000	6445	2.58	12851	24.2	1480	.	3.5	0.57	1725	352	.	.	7.5	.	350	79.7	.
261	19	59000	6449	2.59	12851	23.7	1460	.	3.5	0.56	1726	180	.	.	8.1	.	186	89.2	.
261	20	58000	5449	2.59	12851	23.7	1490	.	3.6	0.55	1726	205	.	.	8.0	.	211	87.8	.
261	21	58000	6443	2.58	12851	23.5	1480	.	3.5	0.54	1726	182	.	.	8.2	.	190	89.0	.
261	22	58000	5443	2.53	12851	23.5	1450	.	3.5	0.54	1726	173	.	.	8.2	.	180	89.6	.
261	23	58000	5462	2.43	12823	25.0	1470	.	3.4	0.60	1629	151	.	.	8.4	.	160	90.2	.

TABLE A-1 (continued)

GEORGETOWN UNIVERSITY EMISSIONS SUMMARY

HOURLY DATA

DAY	HOUR	TOT BLR LD	COAL FEED	SULFR (%)	HEAT BTU	BED DEPTH	BED TEMP	LIME FEED	SUP.	RES. TIME	E SO2	SO2 PPM	NOX PPM	CO PPM	O2 %	E NOX	E SO2	EFF %	CA/S
262	0	58000	5554	2.42	12643	24.5	1490	.	3.4	0.59	1646	163	125	.	8.2	95	173	89.5	.
262	1	56000	5329	2.42	12643	24.5	1490	.	3.6	0.57	1646	150	117	.	8.3	89	160	90.3	.
262	2	56000	5323	2.42	12643	24.0	1490	.	3.4	0.58	1646	135	119	.	8.3	91	143	91.3	.
262	3	54000	6102	2.42	12643	24.0	1490	.	3.4	0.58	1646	142	121	.	8.6	95	155	90.6	.
262	4	55000	5215	2.42	12643	24.0	1490	.	3.4	0.58	1646	112	117	.	8.8	93	124	92.4	.
262	5	55000	5215	2.42	12643	23.0	1490	.	3.4	0.56	1645	113	125	.	9.1	102	128	92.2	.
262	6	56000	5329	2.42	12643	22.5	1490	.	3.3	0.55	1645	126	122	.	9.1	100	143	91.3	.
262	7	55000	5215	2.42	12643	22.5	1490	.	3.3	0.57	1646	131	130	.	9.1	105	149	90.9	.
262	8	54000	6102	2.42	12643	22.0	1490	.	3.5	0.56	1646	.	.	.	.	.	.	.	.
262	9	52000	5975	2.42	12643	20.0	1480	.	3.5	0.48	1646	78	99	.	9.4	83	92	94.4	.
262	10	50000	5550	2.42	12643	15.7	1540	.	3.4	0.41	1646	81	107	.	10.0	95	100	93.9	.
262	11	42000	4746	2.42	12643	15.2	1495	.	3.5	0.36	1646	81	108	.	11.5	111	115	93.0	.
262	12	.	.	2.42	.	.	.	.	.	.	.	65	111	.	12.8	.	.	.	.
262	13	.	.	2.42	.	.	.	.	.	.	.	19	109	.	14.0	.	.	.	.
262	14	.	.	2.42	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
262	15	.	.	2.42	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
262	16	.	.	2.42	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
262	17	.	.	2.42	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
262	18	.	.	2.42	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
262	19	.	.	2.42	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
262	20	.	.	2.42	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
262	21	.	.	2.42	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
262	22	.	.	2.42	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
262	23	.	.	2.42	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.